PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

Vol. CIII JULY 9, 1936 No. 2

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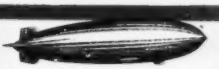

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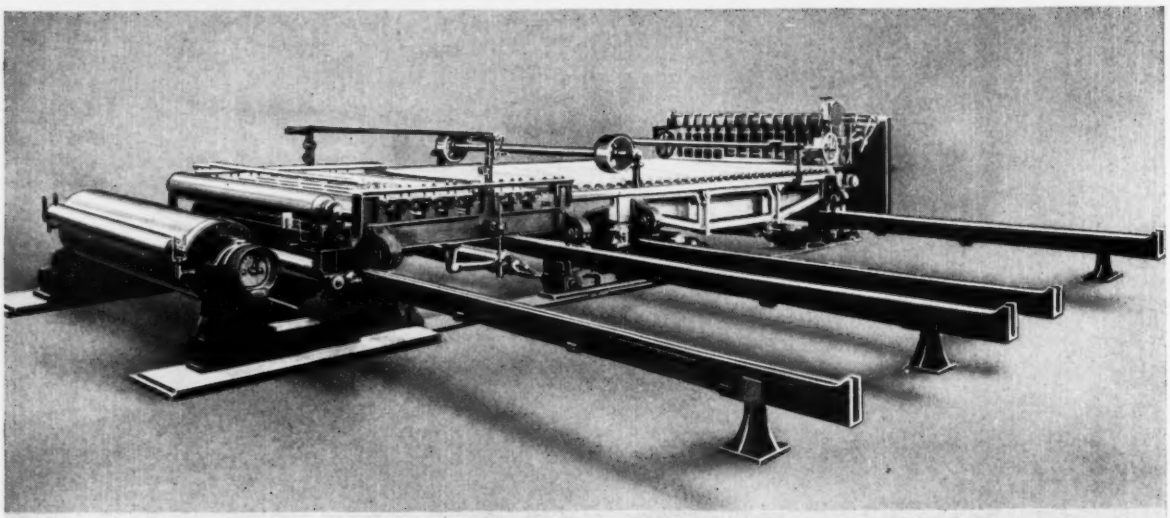

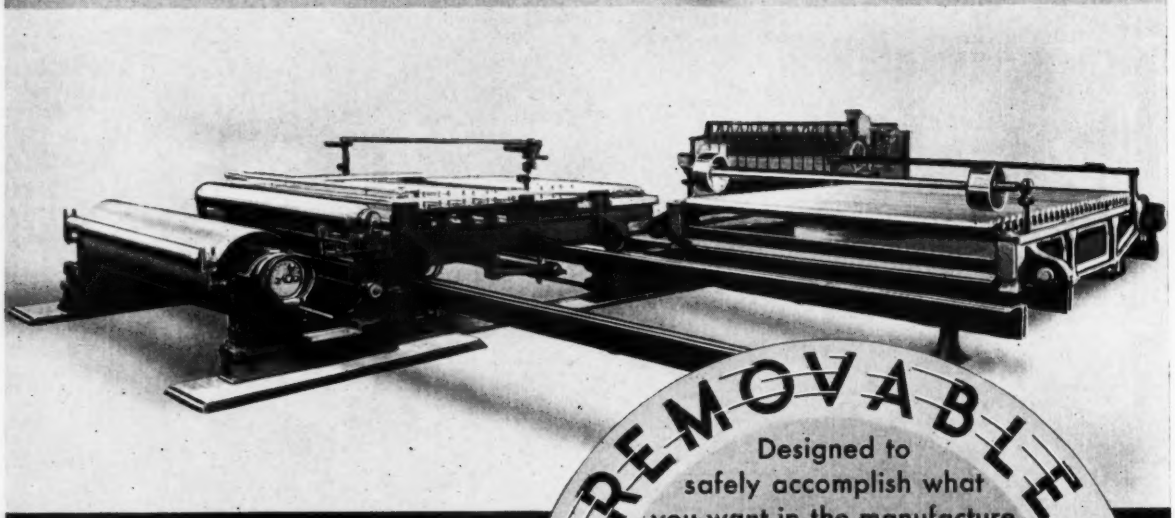

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Entered as second class matter at the Post Office at East Stroudsburg, Pa., under the Act of Congress of March 3, 1879. Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., East Stroudsburg, Pa. Executive and Editorial offices: 15 W. 47th St., New York, N. Y. Domestic subscription U. S. and possessions, $4.00 per year.

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ESTABLISHED 1872

SIXTY-FIFTH YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

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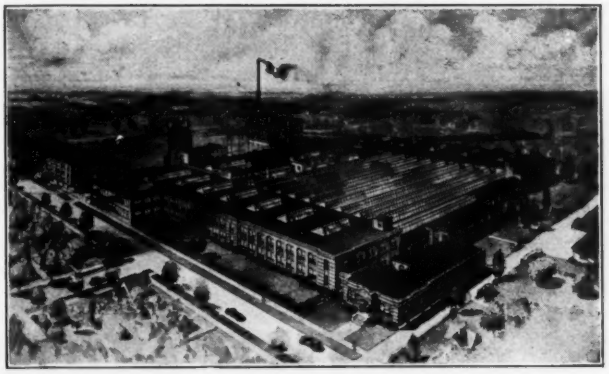
TABLE OF CONTENTS

Continental Completes Equipment Changes..	9
Newsprint Prices for South America Advance	10
Imperial Paper Corp. Reorganizes	10
Tax Assessment at Pyrites Is Reduced.....	10
Chicago Paper Demand Listless	11
Install Pumps at Union Bag Mill.....	11
Great Lakes Receivership Ends	12
Micromax Thermocouple Pyrometers	12
Pacific Coast Pulp and Paper Mills Conclude Wage Agreement with Unions	13
Conditional Purchase Letter Is Considered by Paper and Twine Club	14
W. E. Sullivan with Mohawk Mills	15
Walker Goulard Plehn Co. Hold Outing.....	15
Hopper Paper Co. Builds	15
Bleaching of Pulp	16
New Members of Sales Force of Sandy Hill Iron & Brass Works	16
Construction News	18
Tantalum Makes Its Debut	21
Paper Industry Leads in Maine	21
Editorial	22
Complete Investigation on Pulp	23
Production Ratio Report	23
Two New Paper Making Firms in Australia	23
Technical Section	
TAPPI Meeting Reservations Growing....	25
John Bagg Goes to Parsons Paper Co.	25
Bamboo Pulp Plant for Phillipines	25
United States Patents on Paper Making....	26
New Handbook of Colorimetry	28
Effect of High Pit Temperature and of Pre-heating of the Wood on the Grinding of Loblolly Pine	29
Production of Mechanically Defibered Pulp Masses	32
Morse Chain Drive at Sweet Bros.	35
Imports of Paper and Paper Stock.....	37
New York Market Review	40
Miscellaneous Markets	42
Market Quotations	42

THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements 46-47



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PAPER — SIXTY-FIFTH YEAR — PAPER

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Continental Bag Completes Equipment Changes

Machinery Installed At Marinette to Manufacture Company's Veldown Specialties for Middle West Market—Regular Lines of Tissues and Towels Continued—Changes Will Assist In Keeping Plant On Full Schedule

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 6, 1936—Equipment changes have been completed by the Continental Paper and Bag Corporation at its Marinette, Wis. mills so they can manufacture the company's Veldown specialties for the Middle West market.

One machine at the Marinette and Menominee Paper Company Division has been rebuilt to produce facial tissue stock and other Veldown tissues. Machinery moved from Glens Falls, N. Y., has been installed at the Victory Bag and Paper Company Division, which will hereafter be devoted largely to the conversion of tissues for the Veldown line. Four machines are now in operation at the Victory plant turning out large consignments for Continental customers.

No additional employees have been added at the Marinette and Menominee mill, but thirty to forty workers have been added at the Victory plant.

Installation of the machinery was conducted by Edward Blosser, of the Veldown plant at Glens Falls, who also has trained the personnel in production of the new lines. Manufacture of the regular line of tissues and towels will also be continued.

A. G. Stone, general manager of the Continental company announced that the changes were made to be in a position better to serve the Middle Western trade with Veldown products, and to assist in keeping the Marinette plants in full operation.

Paper Chemistry Institute

Recently the Institute of Paper Chemistry completed a seminar in colloid chemistry, attended by 21 representatives of member mills, and conducted under the direction of Dr. Ben W. Rowland, research associate, and assistants in his department.

This is the third annual seminar sponsored by the Institute for representatives of member mills. Its aim is to give the technical men who are busy in the mills most of the year an opportunity to keep abreast of new developments in various fields of chemistry, and it treats the application of this field of science to the industry in its most recent aspects. Each of the three annual seminars has lasted about two weeks, this year's extending from June 22 to July 2.

New Flood Control Project

Contracts are expected to be awarded this week by the United States engineering office at Appleton, Wis., for the construction of a new dam at Menasha, Wis., at the head waters for the water supply for all paper mills for the Fox River Valley. The project has been made necessary by the obsolete condition of the old dam, and the possibility of a flood control program at the water sources of the river.

Plans call for a modern concrete dam approximately 256 feet in length. Six sluice gates, two more than are provided at the present dam, are to be installed and will be electrically operated. The exact cost has not been announced, but an appropriation of $100,000 has been set aside by the War Department for the project. Work is to be started about August 1.

Congress has passed a bill, signed by the President, which makes funds available for the flood control project. It is expected that government engineers will recommend either a plan to build a series of reservoirs on the Wolf River, chief tributary of the Fox River, at a cost of $14,000,000, or a flood control program to cost $2,500,000. The storage plan is favored so as to assure a uniform water power flow all year around, as well as to relieve riparian land owners who are always at loggerheads with water power owners over the regulation of flow.

Unemployment Insurance Effective

Wisconsin's state unemployment insurance law went into operation July 1. Industries making two percent payroll contributions monthly since 1934 have accumulated $12,000,000 which will be available to 400,000 workers if they lose their jobs. Contributions formerly made to the state and invested by the state annuity board have been transferred to Washington to be handled under the new federal society security law, but each employer's account will be separately maintained. The state law has been amended to dovetail with the federal law. The measure was passed in 1931, but contributions did not become effective until 1934.

(Continued on page 15)

Newsprint Prices for South America Advance

Canadian Companies Announce Substantial Increase In Quotations for 1937 and Additional Tonnage for Balance of Year for South and Central America—Step Follows Recent Price Advance In Australia and New Zealand

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., July 6, 1936—Canadian newsprint companies selling in the markets of South and Central America have announced a substantial increase in prices for 1937 and an additional tonnage for the balance of the current year. The increase represents approximately $10 per ton in the Argentine area with proportionate increases in Brazil, the West Coast and Central America. Canada last year supplied 100,000 tons of the 246,000 tons of newsprint consumer in South and Central America markets last year.

This is the second step taken by Canadian producers towards securing a more equitable price for newsprint. The first was announced at the end of last year and entailed an advance in price in the Australian and New Zealand markets for 1937 and 1938 of approximately $5 per ton. The new price in Australia will be £10 10s. and in New Zealand £10 16s. 6d., delivered at main ports. This in terms of long tons is equal to approximately $52.50 per ton and about $47.25 per short ton, which is the weight used in the domestic market. Approximately half of the tonnage used in the Australasian market is supplied by Canadian mills, or about 150,000 tons per annum. The South African market, it is indicated, will be roughly in line with the Australasian market in matter of price next year.

Production Still Increasing

Newsprint production is still on the up grade in Canada. Current operations are at the rate of between 80 and 85 per cent. of actual capacity, as against 72.1 per cent in 1935 and 51.3 per cent in 1932. Figures just available from the Bureau of Statistics show that exports of newsprint in May totalled 5,165,763 cwt., valued at $8,907,498, as compared with 4,797,619 cwt, valued at $8,224,031, in May, 1935. Some of the larger markets for Canadian newsprint in May were: United States 4,308,550 cwt., Australia 237,624, Argentina 173,783, Japan 118,383, United Kingdom 53,697, British South Africa 49,969. Chile 43,716 and Uruguay 26,800 cwt.

The Australian Market

M. T. Stewart, acting trade commissioner for Canada in Australia, reports that Australia has always been an important market for printing papers, and Canadian manufacturers of newsprint have enjoyed a substantial share of the trade. For the last fiscal year the imports of newsprint in rolls were as follows:

	Tons	£
Total	130,596	1,195,524
United Kingdom	44,309	471,067
Canada	85,259	713,569
Germany	65	821
Norway	378	4,412
Sweden	120	1,217
United States	459	4,365

Newsprint in sheets was imported to the value of £77,819. Mr. Stewart adds:

"During the past year considerable attention has been directed to the development of a newsprint industry in Australia; the proposed sites are on the island of Tasmania, and in the State of Victoria. At the present time, a company is being floated by several powerful financial groups, their intention being to establish a paper mill at Burnie, Tasmania, for the production of various fine printing papers, and a large newsprint installation is under active consideration by another prominent group. Should the present plans be carried out, as they probably will be, Australia will be producing a large percentage of her newsprint requirements by the end of 1938, as well as a proportion of her fine paper requirements.

"Canada does not participate to a large extent in any other paper items except newsprint, although in writing and typewriting papers imports from the Dominion were valued at £26,051 in 1933-34 and £27,686 in 1934-35; the total imports of these items were £422,707 and £424,931 respectively."

Imperial Paper Corp. Reorganizes

HUDSON FALLS, N. Y., July 7, 1936—Adoption of the reorganization plan of the Imperial Paper and Color Corp. was unanimously agreed upon and perfected at a meeting of stockholders this week. Under the plan a new corporation with the title Imperial Paper and Color Corporation, was formed with a capitalization of $4,000,000, divided into 40,000 shares. The assets of the former corporation, except the stock of four subsidiaries known as manufacturing companies, were first purchased and paid for in stock. The new corporation then purchased the assets of the manufacturing companies, also paying for them in stock. Stock in the new corporation which was used in payment of the transaction goes to stockholders in exchange for the stock formerly held by them. The stockholders in the former corporation are now the sole stockholders of the new corporation, having the same number of shares and the same interest in the assets as before reorganization. The four manufacturing companies combined in the reorganization are the Imperial Wall Paper Company, Plattsburg Wall Paper Company, Inc., Underwood Paper Mills and Imperial Color Works. Directors are A. F. Brown, Louis P. Brown, Daniel H. Cowles, Albert L. Emerson, Karl McBride, James H. Pearsall, William Rohe, Francis Butler, J. Edward Singleton, Frank Van Sittert, M. L. C. Wilmarth and A. S. Frazier. Officers are Karl R. McBride, president; Daniel H. Cowles, vice president; James Pearsall, treasurer, and M. L. C. Wilmarth, secretary.

Tax Assessment at Pyrites is Reduced

PYRITES, N. Y., July 6, 1936—Representatives of the International Paper Company have succeeded in having the assessment of the paper mill and other property here lowered from $275,000 to $150,000. In 1932 the property was assessed for $541,000. While the company has been tearing down many buildings here the mill is still erect and it is understood that about 30 dwellings also remain. There are two large and valuable paper machines in the mill which the company plans to remove soon. Civic authorities are now endeavoring to secure a concern to operate the plant.

Demand for Paper Rather Listless In Chicago

Despite Featureless Trading, Paper Market Retains Encouraging Amount of Stability and Underlying Strength—Newly Established Price for Sulphite Bonds Well Sustained—Inquiries for Ground Wood Papers Numerous

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., July 6, 1936—The Chicago paper market was dull and featureless during the past week. The holiday and the absence of a number of paper executives from the city combined to slow up business which was, however, able to retain an encouraging amount of stability and underlying strength. Chief among those lines to give a more favorable report was sulphite bond where it was reported that the newly established price was being maintained in an effective way. Ground woods reported a quiet June but an expectancy of good business in the late Summer and Fall. Inquiries have picked up in a most encouraging way. Newsprint also reported a quiet week but an excellent under tone. Fine papers were virtually unchanged, bonds and ledgers experiencing the seasonal slackening in orders but a fair amount of inquiries which usually precede a pick up in business. Books and covers were unchanged. Waste papers were reported dull.

News of the Industry

Every shipper of paper and allied commodities will probably be anxious to have a copy of the Chicago Regional Port Handbook just issued by the Chicago Regional Port Commission, 20 North Wacker Drive, Chicago. The edition, the fourth annual digest of information, brings up to date the record of port facilities throughout the lower Lake Michigan area and also on the rivers tributary to Lake Michigan. The handbook contains charts of the various ports and also lists terminal facilities and charges, elevators and other particulars. It is a complete and concise record of exactly what the waterways have to offer the shipper and may be secured by writing the Chicago Regional Port Commission at the above address.

The newest release from the Midland Paper Company, Chicago distributors, does an effective job of capitalizing on the disastrous fire which destroyed the old plant this winter. The new mailing contains a picture of the modern plant at 560 West Lake street which now houses the company and calls attention to the "newness" of the entire line—a fact which the fire makes difficult to refute. New lines include those of Rising Parchment; Old Hampshire Bond; Mirra Form and Mimeo; Chester Book; Bulkwell Tabbing Board and other additions.

The Link Belt Company has prepared a statement showing ten comprehensive catalogs which have been issued from the offices at 307 North Michigan Avenue, which thoroughly review the Link Belt lines of interest to the paper industry. Virtually all Link Belt merchandise is shown in one or the other of the ten catalogs, including descriptive material on speed reducers, elevating and conveying chains, variable speed transmissions, power transmitting machines, pulleys, take-ups, conveyors, vibrating screens, rotary dryers, bearings, clutches, safety collars, sprocket wheels and gears.

Joe Pirie, formerly regional secretary for the Paper Distributing Trades Code Authority covering the Chicago and middle western territory, has accepted a position on the sales staff of the Munising Paper Company with offices at the headquarters, 135 South LaSalle street. Mr. Pirie will serve as a sales representative working out of Chicago and contacting merchants and converters. Mr. Pirie has been identified with the paper industry for many years. Ten years were spent with the Neenah Paper Company and approximately six years with the Fox River Paper Company. In his capacity as the representative of the Code Authority Mr. Pirie made a wide and favorable acquaintanceship in this territory which should stand him in excellent stead in his new contacts.

Burt Fisher, Bergstrom Paper Company, chairman of the golf activities of the Midwest Division, Salesmen's Association of the Paper Industry, has officially announced the prize winners at the June 26 outing which was held at the Bob-O-Link Golf Club. The seventy members and guests enjoyed the day and participated in the dinner program which was featured by a drawing for a handsome prize donated by the Bob-O-Link Club. The award was won by A. A. McDonough, of the Hobart Paper Company. The next tournament is scheduled for July 24 at the Knollwood Club, Lake Forest. Prize winners for the June event are as follows:

Low gross, Gene Hammes; low net (17 and under) Courtney Reeves; low net (18 and over), Walter Snelling; low putts, Carl Foley; blind bogey, Harry Van Patten; high gross, George Crafts; low net, first nine, Ray Odman; low net, second nine, Hamilton Vose; low gross, par 3 holes, Herman Berge; low gross, par 5 holes, Ed Hilfert; low putt foursome, Courtney Reeves, Henry Law, Lyn Lake and Bob Whitelaw; low net foursome, Walter Snelling, Jack Burrus, Clarence Rasmussen and Paul Wesco.

The Swigart Paper Company has just released a complete directory of Hammermill lines including a comprehensive color swatch on Hammermill Bonds. The mailing also offers the new working kit of Hammermill Bond; the Hammermill Sample Book of All Products and an interesting booklet on how Hammermill Bond is made. New and lower prices on Hammermill were announced. Actual samples of Hammermill Bond envelope are also attached.

Install Pumps at Union Bag Mill

Vacuum pumps for suction rolls, flat boxes, and felt conditioners at the new plant of the Union Bag and Paper Company, Savannah, Ga., are of the rotary cycloidal type, manufactured by the Roots-Connersville Blower Corporation, Connersville, Ind. Seven pumps will be used in all: five size 12 x 18 inches, and two size 10 x 15 inches.

There are three duplex units, consisting of a vacuum pump at each end of a base, with a double shafted motor in between them, while one is a single unit.

All pumps are direct coupled to motors, the larger of which are of the synchonous type.

The overall efficiency of these units will be exceptionally high, and the minimum amount of floor space will be required. There will be one pump for the flat boxes, two pumps for the suction couch roll, one each for the suction press rolls, and two pumps for the felt conditioners. All pumps of the same size are interchangeable.

Roots-Connersville has been serving the paper industry ever since the inception of the suction roll process, and its products have been constantly improved to keep pace with changes in paper making technique.

Great Lakes Paper Co. Receivership Ends

Newly Formed Company Acquires All Assets of Old Organization—National Trust Co., Ltd., to Distribute New Bonds and Voting Trust Certificates to Owners of Present Holdings—Distribution to Be Completed Shortly

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 6, 1936—An announcement was made this week that Great Lakes Paper Company, Ltd., had been taken out of receivership and that a new company, known as the Great Lake Paper Company, Ltd., had acquired all the assets of the old company and is now carrying on business under its own name.

National Trust Company, Ltd., and the London and Western Trusts Company, Ltd., have received the consideration to be distributed to bondholders of the old company. The preparation of the definitive bonds and voting trust certificates is now under way and as soon as these are available National Trust Company, Ltd., will distribute them to the holders of certificates of deposit and bondholders of the old company. Distribution of the new bonds and voting trust certificates is likely to be completed within two or three weeks. Holders of certificates of deposit and bondholders will be advised by advertisement and by letter where their names and addresses are known, the requirements for exchanging their present holdings for the bonds and voting trust certificates.

Paper Box Manufacturers Meet

Members of the Canadian Paper Box Manufacturers' Association from several of the provinces and including the supplies section, have just completed the annual convention of the organization at Bigwin Inn, Lake -of-Bays. Over 150 of the paper box makers and supply dealers participated in the event in which business and entertainment were blended to the thorough enjoyment of those present who included the ladies of the delegates. At the various business sessions an optimistic view was taken of the industry generally and the belief was expressed that with the summer months over and the fall months arrived a satisfactory volume of business would come the way of the carton manufacturers.

The gathering was presided over by the president, L. P. Morrison, head of the Automatic Paper Box Company, Toronto, who, in his annual address, referred to changes in the tariff and gave figures on the importation of folding cartons into Canada over a period of five years. These showed that importations were gradually decreasing, due in a large measure to improved production methods in Canada. This did not necessarily show a great increase in business but the figures did indicate a rather steadier demand, with far more companies participating in the manufacture of cartons, containers, etc. The number of manufacturing companies in Canada had been increased during the past five years almost 20 per cent., while production of folding cartons had increased approximately 5 per cent. At the same time, it was pointed out, there had been a decrease in set-up boxes of approximately 10 per cent. Competition had been very keen and price levels comparatively low.

L. P. Morrison Again President

When the election of officers came on the vote went unanimously in favor of L. P. Morrison, of the Automatic Paper Box Company, Toronto, for re-election. W. J. Hampel, of Hampel Paper Box Company, Brantford, was elected vice-president, and the following directors were elected: A. Manchester, Manchester, McGregor, Ltd., Toronto; H. G. Turnbull, National Paper Goods, Ltd., Hamilton; G. W. Brown, Gair Company, Canada, Ltd., Toronto; T. A. Moisan, Dominion Containers, Ltd., Montreal. During the conferences which formed part of the agenda of the convention it was shown that there had been a satisfactory addition to the membership during the year and that the activities of the association had been largely devoted to tariff matters, legislation and the introduction of cost methods.

W. Shutt Won Golf Tourney

An interesting feature of the entertainment part of the program was the winning of the tournament for the Fielding golf trophy by W. Shutt, of Paper Sales, Ltd., Toronto, whose wife won the ladies' tournament. The Hinde and Dauch horse shoe trophy was won by I. Good of the Superior Paper Box Company, Kitchener, while Mrs. M. D. Bennett annexed the prize for the high score croquette player, with Mrs. L. P. Morrison winner of the ladies' bridge match.

Among the addresses given were: "The Relationship of Packaging to Merchandising and Advertising" by Clyde Eddy, manager merchandising division E. R. Squibbs & Sons, New York; "Salesmanship" by James P. Ward, president and general manager, Shipman-Ward Manufacturing Company, Chicago, and "What's on the Workers' Mind To-day," by Whiting Williams, industrial consultant, Cleveland. Following these addresses there were some interesting discussions on the subjects dealt with.

Micromax Thermocouple Pyrometers

Written in simple, non-technical language, well illustrated, a new 52-page catalog just issued by Leeds & Northrup describes "Micromax Thermocouple Pyrometers". It explains the potentiometer method of measurement, the operation of the rugged, yet simple, mechanisms through which this balance method is made available to industry.

The new Silver-Anniversary Micromax, announced in the 25th year since this company originated the recording potentiometer, is described in detail. This thoroughly modern machine keeps always visible ten inches of record, while a bold pointer enables the operator to read temperature at a glance. The instrument can be equipped also to operate signals and automatic controls, and is available for measuring not only temperature but CO_2, liquid level, valve position, speed, smoke density, chemical strength, pH, frequency, load, voltage, etc.

Set forth for ready comparison is the complete line of Micromax instruments which offers the pyrometer user appropriate models to indicate, to record, to signal, to control or to perform these functions in any desired combination.

This new catalog contains a wealth of information which everyone who uses or specifies pyrometers will want. To receive a copy, write for Catalog N-33A, Leeds & Northrup Company, 4934 Stenton Avenue, Philadelphia, Pa.

Pacific Coast Pulp and Paper Mills Conclude Wage Agreement With Unions

The annual negotiations for the renewal of the Uniform Wage Agreement between the Unions and the employers in the Pacific Coast pulp and paper mills were concluded in Portland on June 9.

The employing companies are members of the Pacific Coast Association of Pulp and Paper Manufacturers. The Unions representing the employees are International Brotherhood of Paper Makers and International Brotherhood of Pulp, Sulphite and Paper Mill Workers.

The negotiations required more time than in previous years because a number of difficult problems had to be met. Both manufacturers and spokesmen for the Unions have expressed general satisfaction with the Agreement, which is to govern employer-employee relations for the year ending May 31, 1937.

Wages 27 Per Cent Higher on Coast

On the item of wages it was found that the rates already in effect on the Coast were, on the average, 18 per cent. higher than those of pulp and paper mills elsewhere in the United States. With the wage increases provided in the new Agreement average hourly earnings on the Coast will be approximately 27 per cent. higher than the average for the rest of the industry in the United States.

The new wage rates provide a base of 52½ cents for men and 40 cents for women. The increases are generally 5 cents for men and 2 cents for women.

The overtime provisions of the new contract are substantially the same as those in effect last year. All "day workers" receive overtime for work in excess of eight (8) hours per day. Workers of all classes receive overtime for work done during the specified holiday shutdowns on July 4, Labor Day and Christmas. The overtime rate is time and one-half.

The total of the increases, which are effective June 1, 1936, amounts to over $1,000,000 a year.

The principle of limitation of working hours has been continued by agreement, practically in the same terms as those which were adopted under the NRA Code for the pulp and paper industry, with slight changes in the length of the averaging period. This is said to be the only region in the United States where the industry has voluntarily continued these limitations. No other Union agreement, as far as known, carries any limitation of weekly hours in any pulp or paper mill.

One of the most important agreements reached was that covering membership in the two Unions. There is no compulsion whatever on any employee to become a member of any union. However, the employers have committed themselves to cooperate fully "in every proper and lawful way" to assist the local unions in obtaining and retaining members. Any employee who is now a member in good standing, or who becomes a member by his own voluntary action, is required to maintain such membership as a condition of continued employment. Ample protection is provided against penalties on employees applying for membership or reinstatement, and also against unjust suspension or expulsion from the union.

The 1936 agreement continues the full protection against interruptions of work, through strikes and lockouts, which was in the previous agreement. In substance, the two parties agree that their relations will be undisturbed, and the employees will remain at their jobs, regardless of disagreements that may arise between either party and any third party, and regardless of disagreements between other employers and their employees.

The arbitration machinery originally set up in the 1934 agreement has been continued without substantial change. This provision is unique in the industry, and has been used only once during two years the agreement has been in effect. On the one occasion when a grievance was carried to the Joint Relations Board, the supreme tribunal for arbitration, it was unnecessary to add a neutral member to the Board; the four employee members and the four employer members were unanimous in their decision.

Commenting upon the arbitration provisions, President John P. Burke of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, said:

Real News

"It seems to me that the fact that in twenty-two months' time, under these agreements, that just one grievance has been taken to the Joint Relations Board is real news; that it is something to write home about. I believe it was Charles Dana, the noted editor, who, in explaining to a cub reporter what was news and what was not news, said, 'If a dog bites a man, that is not news, but if a man bites a dog, that is news.'"

"Now, accepting Charles Dana's definition of what is news, we must arrive at the conclusion that when workingmen have grievances and go out on strike, that is not news, because that is a daily occurrence; but when the representatives of eight or ten thousand men working in twenty or more industrial establishments are able to sit down in conference with employer representatives and compose their differences and reach an agreement and set up a Joint Relations Board and then that Joint Relations Board finds itself just about as necessary to the functioning of that agreement as is the vermiform appendix to the functioning of the human body, that is news! That is something to write home about! That is something that should be publicized from coast to coast!"

In the negotiations the employees were represented by eight official negotiators selected from the local delegates present at the conference, with the International and District Officers of the employees' organization also participating as advisors.

The employers were represented by a like committee of eight with the officers of the Manufacturers Association participating as advisors.

D. C. Beck of Vancouver acted as chairman of the employee negotiators, and J. D. Zellerbach of Crown Zellerbach Corporation as chairman of the employer group.

Sixteen Years of Service

Having built up a reputation for service, of which it is justly proud, the Chemical Service Corporation, 101 East 19th street, New York, on June first, began its sixteenth year of purchasing surplus, finished and raw materials, as well as developing markets for industrial wastes, residues and sludges of all kinds.

Conditional Purchase Letter Is Considered By Paper and Twine Club

The Paper and Twine Club held its annual meeting and golf tournament at the Granville Inn, Granville, Ohio, on Wednesday, June 24, 1936, the golf tournament starting on the afternoon of June 23, followed by dinner on the evening at the Granville Inn at which a general social time was enjoyed, the music being furnished by an orchestra from Columbus, Ohio, composed of business men, friends of R. W. Miller, president of Middle States Wrapping Paper Association.

Mister Bachman Solicits Orders on Kraft

During the afternoon of the 23rd many rumors were heard about a supposed Swedish paper manufacturer who had 3,000 tons of kraft to sell at $60 a ton delivered. He was introduced as Mr. Bachman by C. J. Whittrock, president of the Paper and Twine Club, and made a speech which aroused the anger of the entire assembly because of his apparent violation of the rules of courtesy in trying to sell his kraft paper while a guest at such a meeting. Many of the jobbers and manufacturers who had attempted to contact him in the afternoon for the purpose of making a good buy were very much chagrined to discover that after all the Swede was only Clem Boex, an insurance man from Cincinnati and friend of Jack Whittrock's, brought to the meeting for the purpose of helping to amuse and instruct the members present. Singing and a general good time was enjoyed at the meeting, which lasted well into the small hours of the morning.

At 10:00 o'clock on the morning of Wednesday, the 24th, the meeting was called to order in the Assembly Room of the hotel by C. J. Whittrock, president of the club, who presided, John L. Richey acting as secretary. Mr. Wittrock opened the meeting with some remarks upon the state of the trade generally, and called on all members to arise and identify themselves.

Club Membership Grows

After the introduction of the members to each other, the secretary-treasurer read his report, announcing that the total membership at the present time was 110 since its inception October 1, 1935. On motion duly made, seconded and carried, the report was approved as read.

The secretary then read a wire from Lewis Sisson, expressing his regret at being unable to be present and sending his good wishes to the members of the Club.

The secretary then presented a report on the so-called conditional purchase letter, giving the history of the movement resulting in the letter and reading also a new form which it was suggested be used in place of the one the merchants had been using in the immediate past in their purchases from the mills. He also brought up the question of the Robinson-Patman Bill, mentioning the fact that if this Bill were held constitutional and enforced, it would do very much toward remedying the situation and carrying out some of the ideas involved in the conditional purchase letter. This was followed by a very lengthy discussion, it being the sense of the meeting that the merchants would continue to use the letter in its amended form, and the suggestion was made that the secretary send copies of the new form of letter, with an explanation, to all the manufacturers, requesting them to express themselves as to whether or not they would accept business on this letter, and if they objected to so doing, to communicate the details of their objections to the secretary of the manufacturing association with which such manufacturer is affiliated, the request being made that he also send copies to the executive secretaries of each of the manufacturing divisional associations in order that they might bring the matter before their membership as a whole at an early meeting, based on the information communicated to them by their own manufacturers.

Conditional Purchase Letter

A copy of the Conditional Purchase letter follows:

Gentlemen:

Please be advised that on all orders which we place with you hereafter for any type of merchandise whatever, there should appear the following statement: "The provision against price discrimination heretofore delivered to you by letter constitutes one of the terms and conditions of this order." The provision against price discrimination referred to above is as follows:

That the prices at which the merchandise covered by this order is billed, are no higher than the prices at which comparable merchandise, under any brand or name, and for a like quantity, in one shipment, for resale or consumption in unconverted form, has been billed by you or your agents to any Paper Merchant or other wholesaler, mail order house, chain store, buyers' syndicate, or any other purchaser in the Zone in which we are located and which Zone is recognized by your industry, within 30 days of the date of the invoice covering the merchandise on this order, save and except commissions paid to your agents, and except any major price advance or decline previously announced by you and universally effective; and further, that you have given no free deals, discounts, advertising allowances, or other advantage of any kind to any of said purchasers within said 30 days, that are not available to us in like manner.

If these terms are not agreeable, return this order to us.

Very truly yours,

The foregoing letter should be sent to all sources of supply and thereafter the following wording should be printed, typed or rubber-stamped on the face of all purchase orders after the above letter has been filed with your manufacturing sources of supply: "The provision against price discrimination heretofore delivered to you by letter constitutes one of the terms and conditions of this order."

Discuss Exhibit at Chicago and New York

The secretary then brought up the question of a manufacturers' exhibit at the Chicago and New York meetings of the National Paper Trade Association and the American Paper and Pulp Association, but after some discussion, on motion made, seconded and carried, the idea was tabled for the time being.

Those in Attendance

Douglas Fleet, Albermarle Paper Manufacturing Company; Hal Telfer, Detroit Sulphite Pulp and Paper Company; Tom Fletcher, Fletcher Paper Company; Bud Jewell, Capital Paper Company; Joe Bridge, John Shartle and Harvey Giles, Brown-Bridge Mills, Inc.; W. E. Penny, Cayuga Linen and Cotton Mills, Inc.; R. W. Miller, Central Ohio Paper Company; Phil Howard, *American Paper Merchant;* F. A. Mann, Dennison Manufacturing Company; Bob Seybold, The Seybold Paper Com-

pany; George Prandy, Bay West Paper Company; H. S. Daniels, Union Bag and Paper Corporation; T. H. Mullen, Gaylord Bag and Paper Company; R. C. McCaskey, Minerva Wax Paper Company; R. H. Conley and S. J. Meier, The H. Conley Company; Mac Wellington, Fletcher Paper Company; Alfred S. Walden, Walden, Sons and Mott, Inc.; F. Bendel Tracy, Port Hill Paper Company.

A. J. Ulrich, Scioto Paper Company; Carl Johnson, American Paper Goods Company; Jos. Coy, Jr., Cherry River Paper Company; Ken Bunting, Crown Paper and Bag Company; Don Driscoll, The Sorg Paper Company; F. C. Hibbard and K. K. Hanlon, Hanlon Paper Company; Tony McNulty, McNulty Paper and Twine Company; F. T. Jamison, Interstate Cordage and Paper Company; C. R. Walker, Fox Paper Company; Chester Drury, Security Bag Company; Bill Carr, Detroit Sulphite Pulp and Paper Company; E. P. Magel and Harvey Woghorst, Crescent Paper Company; Bob Loy, Hooven & Allison Company; Neil Nash, Nekoosa-Edwards Paper Company; Frank Meiners, Filer Fibre Company.

R. N. Adair, January and Wood Company; Walter Seinsheimer, Clopay Corporation; Ed Herrlinger, Gummed Products Company; Edgar Hall, Jr., Central Paper Company; R. P. Bertschy, American Envelope Company; Ed Hess, Chatfield Paper Corporation; Geo. W. Sisson, 3rd., Racquette River Paper Company; Bill Worthington, Menasha Products Company; W. N. Corbrick and Stuart Thompson, Central Paper Company; Roth Herrlinger and Phil Cates, Gummed Products Company; Willard Henry, Advance Bag and Paper Company; Edward F. Melia, The Paper Bag Manufacturers Institute; Ernie Brown, Superior-Lawrence Bag Division of the Sorg Paper Company.

Gunner Olsen, Ray Dee, A. L. Moore and H. P. Sparkman, Southern Kraft Corporation; John Blakey, Central Ohio Paper Company; J. L. Littleton, Springfield Paper and Merchandise Company; W. S. Howins, National Paper Trade Association; Mike Hewins, Ashtabula Paper and Twine Company; Clem Boex (insurance agent), Cincinnati, Ohio; E. Bruce Livy, Wortendyke Manufacturing Company; C. A. Spaulding, National Paper Trade Association; Larry Doyle, Union Bag and Paper Corporation; L. C. Anderson, The Sorg Paper Company; Julius Stille, International Paper and Pulp Corporation; S. M. Hudson, Kraft Paper Association; T. Floyd Smith, Louisville Paper Company; James Brennan and Elmer Brennan, Merchants Paper Company; A. T. Nesbitt, Cincinnati Cordage and Paper Company; Tom Willis, Willis & Weber Paper Company; T. A. Peter, Central Ohio Paper Company; W. C. Huit, Hooven & Allison Company; J. A. Wesley, Rhinelander Paper Company; Herbert Thwaite and Bert Reider, Victoria Paper Mills.

W. E. Sullivan with Mohawk Mills

The Mohawk Paper Mills, Inc., Cohoes, N. Y., have sent out the following notice:—

"We regret to announce that R. H. Ashby, who has been in charge of our Philadelphia office, is no longer connected with our company.

"We are pleased to announce that William E. Sullivan will succeed Mr. Ashby, and will assume his duties Monday, July 6.

"Our office will continue at Room 1522, Lincoln-Liberty Building, Broad and Chestnut streets. The Phone is Rittenhouse 3187.

"Mr. Sullivan spent many years with the American Writing Paper Company and for the past eight months has covered western New England for us with headquarters here at the mill.

CONTINENTAL COMPLETES CHANGES

(*Continued from page 9*)

The minimum benefit to an unemployed man or woman is $5 a week. This rate is scaled upward to $10 for those whose full time pay is $25 a week; $12.50 for the average pay of $25 to $30 a week, and $15 the top rate for workers normally receiving more than $30 a week. The duration of the benefits depends on how long a person has worked for his employer after the probationary service period has expired. The ratio is one week of benefits to four weeks of employment for $24-a-week workers; one to five for the $25 to $30-a-week class, and one to six for the $30-a-week category. It applies to all earning an average of $1,500 a year or less.

Fire Damages Mill Supply Plant

An approximate fire loss of $3,000 was suffered by the Menasha Paper Mill Supply Company, Menasha, Wis., last week. The blaze is believed to have started from spontaneous combustion in bales of waste paper stored in the building. It broke out during the night and required five hours of work by the fire department to extinguish. Thirty sprinkler heads of the automatic system functioned to hold the blaze in check, and the principal damage was from water. The company had rebuilt its plant completely along fireproof lines following a disastrous fire about three years ago.

Walker Goulard Plehn Co. Hold Outing

The Fourth Annual Outing of The Walker Goulard Plehn Company of New York was held at the Narragansett Inn, Lindenhurst, L. I., on Saturday, June 27. It was by far the largest and most enthusiastic gathering that has ever attended these affairs.

Prizes were awarded to the following: Ladies' Egg Race, Mrs. Harold Burke; Ladies' Potato Race, Miss Ann Strosahl; Basket Pitch, T. C. Goulard; Horse Shoe Pitching, J. H. Woolsey; Childrens' Bean Bag, Kenneth Bernhardt.

Door prizes were won by Vincent Burns and Gerard Burke.

After a marvelous shore dinner, the entire assemblage sojourned to the ball field for the annual baseball game between the married men and the single men. The team of single men retained custody of the Burke Memorial Trophy by staging a ninth inning rally that tied the score at 12 all, and then pushed over the winning run in the tenth inning to win the game 13 to 12.

Both winners and losers, however, assuaged their thirst and drowned their sorrow, or celebrated their victory, as the case may be, in copious drafts of real old beer.

After supper there was dancing and entertainment, and then all left for home, tired and happy, but not hungry.

Hopper Paper Co. Builds

[FROM OUR REGULAR CORRESPONDENT]

TAYLORVILLE, Ill., July 7, 1936.—The Evans Construction Company, Springfield, has been awarded the contract for the erection of a two-story brick addition to the Hopper paper mill, F. D. Frampton, general manager of the Hopper Paper Company, announced recently and work on the improvement has already been started.

The approximate cost of the addition is $28,000 and the structure, which will connect with the building proper, will be 63 by 128 feet in size, with a floor space of approximately 16,000 square feet.

Bleaching of Pulp

DIE BLEICHE DES ZELLSTOFFS. (Bleaching of pulp.) First part. Erich Opfermann and Ernst Hochberger. Berlin, Otto Elsner Verlagsgesellschaft, 1935. 285 pages.

This work is Volume III, Part I, of "Technik und Praxis der Papierfabrikation", under the editorship of Emil Heuser and Erich Opfermann. Volume I, Part I, covered the History of Paper; Part II, the Preparation of Paper Halfstuff. Volume II, Part I dealt with Sulphite Pulp, while Part II covered the Alkaline Processes.

As will be seen from the following analysis of the contents of the present volume, it deals primarily with the chemistry of the materials used in bleaching; a prospectus of the second part has not been seen, but it will undoubtedly deal with the bleaching process. It seems to be a complete presentation of the subject and while most of the references are to German publications, there is a liberal number of citations from English and American journals. All the illustrations are from German sources.

Chapter I traces the history of bleaching, which in its earliest days was concerned only with textile fibers, from the time of Plinius to the present. There are 108 references in this Chapter.

Chapter II deals with the question of water and its relation to the bleaching process; it includes such topics as clarification by filtration and by the use of aluminum sulphate, the removal of iron, purification by chlorination, the acidity of mill waters, and the methods of testing and analysis. There is a four page bibliography and a list of patents (6 pages), arranged by countries.

The third Chapter discusses the chemistry of Chlorine, Hypochlorous acid and the hypochlorites, while Chapter V treats of the methods of manufacture and handling liquid chlorine. Bleaching powder and technical bleaching solutions from this product are covered in Chapter four. The electrolytic preparation of bleaching liquors, chlorine and alkali are treated in Chapter six. There are bibliographies at the ends of Chapters four and six. Only German patents are given for the subject of electrolysis.

Sodium hypochlorite and its manufacture are covered by Chapter seven and chlorine water (because of its importance in the de Vains' process) in Chapter eight. The chemical processes in the liquid phase in the hypochlorite bleach of sulphite pulp are thoroughly discussed in Chapter nine, the effects of temperature, acidity and concentration being considered.

There are name, subject and table indexes (about 60 tables).

This volume should prove of great value to one who reads German and who is interested in the chemistry of the materials used in the bleaching process.

Like all Elsner books, the volume is well printed and substantially bound.

C. J. WEST.

Japan Imports More Pulp

[FROM OUR REGULAR CORRESPONDENT]

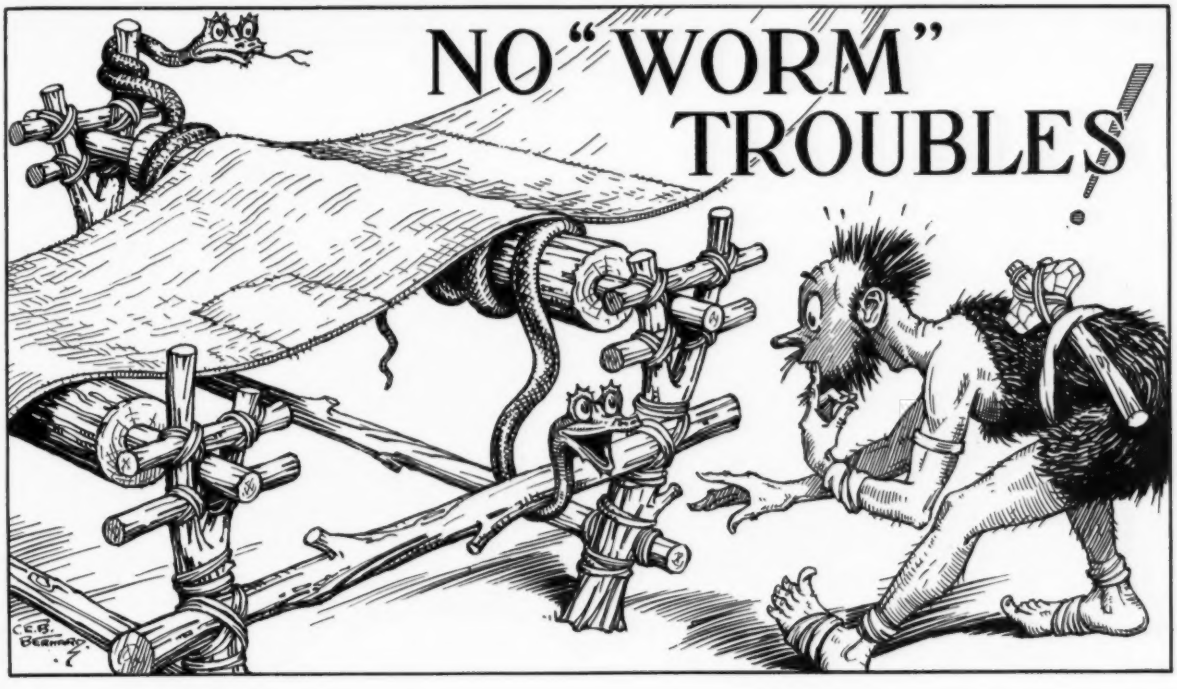
WASHINGTON, D. C., July 8, 1936.—Japanese production of chemical and mechanical pulp during the first three months of 1936 totaled 176,738 tons, a slight decrease from the previous quarter's total and exceeding by 3 per cent production during the first quarter of 1935. Imports of wood pulp during the first quarter of the current year totaled 88,321 tons, thereby setting a new all-time record for any calendar quarter. Arrivals exceeded imports during the last quarter of 1935 by 27 per cent and during the corresponding quarter in 1935 by 6 per cent. Imports of pulp for the manufacture of rayon, amounting to 33,345 tons, were 6½ per cent under those for the corresponding period last year, reflecting the effect of the rayon control scheme, which limits production to 30 per cent of capacity, as well as the fact that stocks on hand at the end of February were the largest yet recorded. Imports of pulp for paper making, on the other hand, were 18½ per cent larger than during the corresponding period last year.

During the first quarter of the current year the United States supplied 47 per cent of the total volume imported, Sweden ranking second and Norway third as sources of supply; only 7 per cent of the total imports came from Canada. Arrivals of wood pulp from the United States have increased steadily, receipts for the first quarter showing a gain of 20 per cent compared with the corresponding three months in 1935, and 142 per cent over the first quarter of 1934.

New Members of Sales Force of Sandy Hill Iron & Brass Works

J. WESLEY JOSLYN

PAUL P. HILTON



WITH WHITE STAR FELT CARRIER ROLLS

WHITE STAR Wormed Felt Carrier Rolls simply can't get out of order. The worm is cut right into the hard ebonite rubber cover. There are no tacks or fastenings to pull out, no seams or edges to work loose. And the rubber surface is easy on the felt. It won't pit or roughen. In fact, long service merely makes it smoother. Be kind to your felts—specify WHITE STAR Wormed Felt Carrier Rolls.

STOWE-WOODWARD, INC.

NEWTON UPPER FALLS • MASSACHUSETTS

NEW YORK OFFICE WOOLWORTH BUILDING

WHITE STAR Rubber Covered Rolls
STONITE Top Press and Smoothing Press Rolls
TANNITE Couch Rolls
All made by the COREWELD Process

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Chicago, Ill.—The Flintkote Company, 624 South Michigan avenue, manufacturer of roofing and building papers, etc., will soon have plans drawn for new addition to local plant on 17th street, near Wentworth avenue, to be two-story, 120 x 160 feet, estimated to cost over $150,000, including equipment. Large increase in present capacity will be arranged. An architect will be selected at once to prepare detailed plans and bids asked on general contract at early date. Main offices of company are at 50 West Fiftieth street, New York, N. Y.

Philadelphia, Pa.—The Goldman Paper Stock Company, 316 North Third street, has leased space in building at Third and Vine streets, totaling about 21,000 square feet of floor area, and will use for storage and distributing department.

Kalamazoo, Mich.—C. A. Hubbard Papers, Inc., has been organized to operate a local mill for the manufacture of paper products of various kinds. New company is capitalized at $50,000, and headed by Corril A. Hubbard, McNair Building, Kalamazoo.

Wisconsin Rapids, Wis.—The Consolidated Water Power and Paper Company has begun reconstruction of its power dam at Biron, Wis., used for service at mill, and will replace about one-fifth of the structure with a new concrete section of gravity dam type, 242 feet long, with gate portion 158 feet, to be equipped with five new tainter gates and accessories. Entire project will cost about $85,000. Company engineering department is in charge of project.

Chicago, Ill.—The J. W. Butler Paper Company, 223 West Monroe street, has asked bids on general contract for alterations and improvements in local factory at Franklin and Monroe streets, including exterior work. No estimate of cost has been announced. John M. Devlin & Co., 110 South Dearborn street, are engineers.

Hoboken, N. J.—The Universal Folding Box Company of New Jersey, Inc., recently organized by officials of the Universal Folding Box Company, 94 Thirty-fourth street, Brooklyn, N. Y., has taken title to the former local plant of the Gatti Paper Stock Company on Monroe street, 12th to 13th street, and will occupy as new factory for manufacture of folding boxes and cartons. As previously announced in these columns, the existing one-story building will be remodeled and improved, with installation of equipment at early date. Entire project will cost close to $50,000. Facilities will be provided for large capacity.

Rome, Ga.—The Tubize Chatillon Corporation, manufacturer of viscose rayon products, has plans under way for new addition to local mill to increase present capacity about 50 per cent. Work will include group of new buildings, installation of machinery for increased output noted, and improvements in present units and equipment. Water supply facilities will be enlarged. Company will also carry out an expansion and improvement program at branch mill at Hopewell, Va., with installation of equipment for increased capacity. Entire project will cost about $2,800,000, and is scheduled to begin at early date. Financing is being arranged. Main offices of company are at 2 Park avenue, New York, N. Y. R. G. Jones is manager of the mill at Rome.

South Bradford, Pa.—The North Eastern Container Company, manufacturer of corrugated and other boxes and containers, has completed plans for new one-story building, 100 x 145 feet, to be used primarily for storage and distribution. Bids have been asked on general contract and it is proposed to begin work on structure at early date. It will cost close to $40,000, including equipment. R. L. Edwards is company engineer in charge.

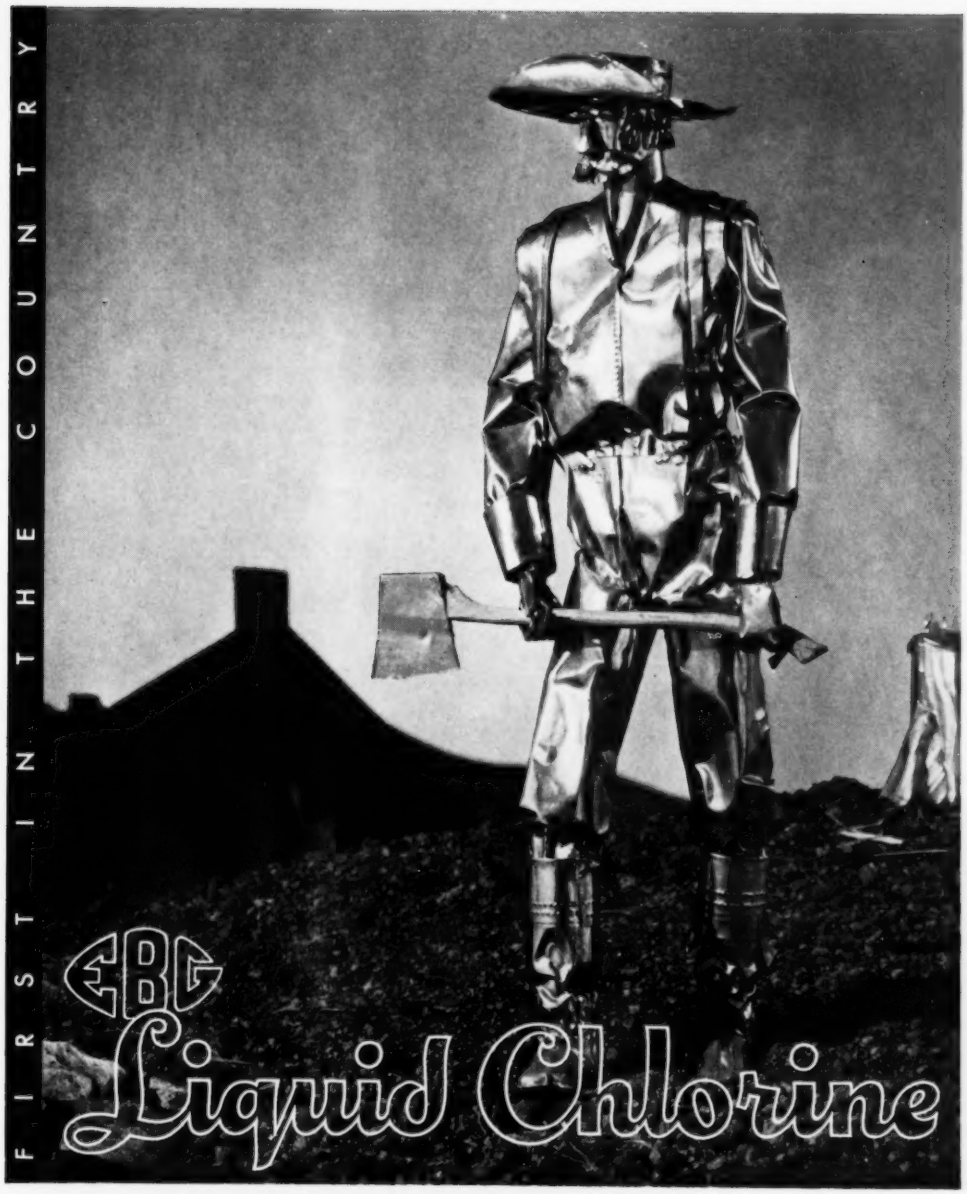
Chattanooga, Tenn.—Fire, June 29, damaged a portion of local plant of the Tennessee Paper Mills, Inc. An official estimate of loss has not been announced, but is reported as slight. The damage will be replaced.

Pyrites, N. Y.—The International Paper Company, 220 East 42nd street, New York, N. Y., has announced intentions of allowing free use of its local mill, idle since 1929, to any company which would give employment to 100 men, and negotiations are said to be under way with a chemical manufacturing company, name temporarily withheld, to take over the property on such basis. Assessments on the property by the local town officials have been reduced from $275,000 in 1935 to $150,000. The company will not resume operations at the plant for its own account at this time.

Buffalo, N. Y.—The duPont Cellophane Company, River road, manufacturer of transparent cellulose paper products, has tentative plans under consideration for expansion at local mill, including installation of additional equipment for increased output. No estimate of cost has been announced. Company is a subsidiary of E. I. du Pont de Nemours & Co., Wilmington, Del., which is arranging for early dissolution of the duPont Cellophane Company and operation in future as a unit of parent organization under the name of the Cellophane Division of E. I. du Pont de Nemours & Company.

Charleston, S. C.—The West Virginia Pulp and Paper Company, 230 Park avenue, New York, N. Y., is planning for early construction of a large wharf in the vicinity of Beaufort, S. C., near Charleston, to be used in connection with handling of pulpwood supply for proposed new mill on the Cooper River, Charleston, recently referred to in these columns. New wharf will be about 50 feet wide and 100 feet long, located in the Jericho Point district, provided with mechanical-handling facilities for timber service. Application has been made for Federal permission to proceed with construction

SCULPTURED IN TIN
BY L. L. BALCOM



GONE are the dangerous days of frontier homesteading—when land was cleared by alert pioneers under the shadow of the savage's tomahawk. But the adventurous spirit of these empire builders still lives today. EBG, first to produce Liquid Chlorine in America, carries on the frontier tradition into plant and laboratory. First to adapt Liquid Chlorine to textile bleaching, paper bleaching, shellac bleaching, first to apply it to the sterilization of water, EBG pioneers steadily in the discovery of new applications for this most important product. No wonder there are so many loyal followers of EBG, the country's oldest and most experienced producer of Liquid Chlorine!

ELECTRO BLEACHING GAS COMPANY, MAIN OFFICE: 9 EAST 41st STREET, NEW YORK, N.Y. • PLANT: NIAGARA FALLS, N.Y.

Paper and pulp mill at Charleston will be used for kraft liner stocks, as previously noted in these columns, and will represent an investment of about $5,000,000.

East Walpole, Mass.—Bird & Son, Inc., manufacturer of roofing and building papers, etc., is running on an increased production schedule, and all departments are being maintained on a higher capacity output as compared with this time a year ago, with increased working force. Company has arranged for a semi-annual bonus for employes, effective June 30. All operatives who have been with the company continuously for more than five years up to that time have received 4 per cent of their normal months' earnings, while those whose service has been for more than two years but less than five years, have been allotted 2 per cent of normal months' earnings.

Albany, N. Y.—The A.P.W. Paper Company, 1273 Broadway, in pushing construction of new addition to tissue paper mill at North Albany, previously referred to in these columns, and will have unit ready for service in near future. It will be two-story and basement, 200 x 300 feet, and will be used primarily for storage and distribution. Miscellaneous contracts for all completion work recently have been let. J. P. Sewell, 372 Hudson avenue, Albany, is general contractor. Structure will cost over $75,000, including equipment. Johnson & Wierk, Grand Central Terminal, New York, N. Y., are consulting engineers.

Bathurst, N. B.—The Bathurst Power and Paper Company, Ltd., has begun production of box board materials at local mill, with rated capacity of about 100 tons per day, and will develop this production schedule at early date. Plans are under way for early improvements and reconditioning of newsprint machine at plant, to be arranged for a production basis of 70 tons per day, and it is proposed to have the unit ready for service at early date. Company is also operating for the manufacture of kraft liner stocks, with machine unit now on a schedule of 130 tons per day, to be advanced to an ultimate output of 170 tons in near future. Mill is giving employment to large working force in all departments.

Tantalum Makes Its Debut in the Paper Industry

Tantalum, the wonder metal of industry, makes its appearance to the pulp and paper industry at the convention of the American Pulp and Paper Mill superintendents.

Tantalum is made from the ore tantalite, which is found in limited quantities in many places, but for the most part as an accessory metal. Only in the desolate Philbarra district of western Australia, 450 miles from the nearest railway, is tantalite in sufficient concentration to permit operation on a scale which will take care of the requirements of the producer.

The entire production of tantalum metal, beginning with the treatment of the ore, is carried out in the plant of the Fansteel Metallurgical Corporation in North Chicago, Ill. The processes are highly specialized, requiring strict laboratory control.

Even if the pure tantalum powder is obtained through the chemical processes of reduction, the remaining steps are rendered difficult because of the metal's extremely high melting point which makes it impossible to utilize ordinary metal melting operations. The metal is not fused but is produced by pressing, sintering at extremely high temperatures, hammering and swaging. As tantalum combines readily with all common gases at elevated temperatures, it is essential that the ingots be prepared sufficiently well to be worked without the application of heat. Subsequent operations such as swaging, wire drawing, rolling sheet, and drawing seamless tubing, are done cold with vacuum annealing at suitable stages. Fabrication that requires welding, machining and hardening is accomplished by utilizing processes and techniques developed by the manufacturers.

In many respects this metal is really most unique.

It is a pure metal (element 73).

It is completely resistant to corrosion and chemical attack of most acids, this is particularly true of the acids of sulphite digestion.

It is resistant to the action of chlorine and bleach liquors.

It is as strong as any material which could be applied.

It is not weakened by corrosion.

It is an excellent material for heat transfer surfaces because it can be used in very thin sheets and tubes with resulting low thermal drop.

It is unchanging in its thermal properties because no product of corrosion can be formed to produce low conductivity surface films.

It is equivalent to ceramics in its resistance to chemical attack, yet can be fabricated into complicated forms.

It is capable of being welded with high pressure joints which are stronger than the parent metal.

It is uniformly resistant to chemical attack over welded and unwelded areas.

It is completely homogeneous, and it contains no impurities, which may set up a local electrolytic action.

It is capable of being drawn, stamped, hammered, formed, or welded without introducing strain areas which may become the center of local action.

It is capable of being hardened through a wide range without losing any resistance through chemical attack.

It cannot be cast nor handled as a chrome nickel alloy, ordinarily used in sulphite work, yet it can be so fabricated to cover parts that it will afford full protection to the surface involved. The fact that it can be hardened without impairing its corrosion resistance properties opens up a wide field of application.

Tantalum applications in bleaching plants seem to present an unlimited field, needle valves, nozzles, sleeves for acid pumps, laboratory agitators, production agitators, pump parts, temperature control devices, injectors, etc. Since it is in no way affected by chlorine, or chlorine compounds, it will not corrode, therefore, will not stain the pulp. Since it can be hardened and the fact that it is very tough eliminates the possibility of wear experienced with other metals.

The brochure of the Fansteel Metallurgical Corporation is extremely interesting and was distributed to every one interested at the convention. The table on page 42, showing the result of corrosion resistant tests, is almost unbelievable.

Paper Industry Leads in Maine

The pulp and paper industry led all other industries in the state of Maine during the past year, according to statistics on the chief industries in this State recently compiled by the Maine Department of Labor and Industry. The boot and shoe industry was second in size, followed by the woolen and cotton industries.

The pulp and paper industry maintains 30 plants in Maine, and employs 12,651 men and women. The total value of the product is computed at $50,278,482.71, according to the Department of Labor and Industry records. The industry has a payroll annually of $14,269,634.

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Editor
Ronald G. Macdonald
Editor Technical Section
Herbert J. Laughton
Associate Editor
Thomas J. Burke, C. A.
Editor Cost Section
Lynne M. Lamm
Washington Correspondent
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FUTURE MEETINGS

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Summer International Meeting in Canada, August 3 to 7, Montreal, Quebec, The Saguenay. Details may be obtained from the secretary, R. G. Macdonald, 122 East 42nd street, New York.

PAPER BOX CONSUMPTION EXPANDS

In keeping with the increased usage of paper boxes and containers, and the wider distribution of consumer merchandise, wholesale volume in units ranged from 10 to 20 per cent larger for the first five months of the current year than for the corresponding 1935 period. Keen competition and the low price level, however, left the dollar volume about where it was a year ago. Employing more help and working longer hours, manufacturers in the corrugated and folding box divisions made the best showing. For set-up boxes, the gain in output was smaller.

Unit production of paper boxes last fall was the largest in three years, and for the first five months of 1936 went 10 to 12 per cent ahead of the 1935 total. This was reflected in the operations of paper board manufacturers, which in October, 1935, reached 80 per cent of capacity, or 27.0 per cent higher than the 1934 comparative. The curtailment that followed was checked in January, and successive monthly increases brought the operating rate for April, 1936, to 72 per cent of capacity, a rise of 10.8 per cent from the April, 1935, rate at 65.

On the whole, the industry does not seem to be in a healthy condition. Competition in an already overcrowded field has been intensified by the entrance of new manufacturers, and the spread of price-cutting has blocked all attempts to raise the level of quotations. The poor financial statements submitted by most manufacturers explain the rising trend of failures for the first time since 1932. These were some of the major developments revealed by a survey of the paper box industry, which has just been completed by Dun & Bradstreet, Inc.

Folding boxes continue to lead in popularity, their use having been broadened by the many novel display and advertising purposes for which nearly all lines of industry have found effective employment. Conditions in this division of the paper box industry are considered better than at any time in several years. As tonnage production has increased steadily, and prices have been adjusted to a more satisfactory basis, the outlook is favorable.

The output of folding boxes in units for the first five months this year was larger by 12 to 18 per cent than in 1935. May was the high month, with an increase of 25 per cent over May last year. The largest gain in sales has been to manufacturers of foodstuffs. The clothing, laundry, and millinery industries also placed larger specifications than last year, and the drug trade rapidly is coming to the fore as an important buyer.

Profit margins have been helped by the advance of 7 to 10 per cent in prices since last year and by the growing demand for the better qualities of boxes. Payments have been prompter, as the average credit period for the first five months in 1936 was 19.6 days, which compared with 23 days for 1935. Bad debt losses have been comparatively small, as the industry largely is a service one, with no large accumulation of receivables.

In the set-up paper box division results thus far this year have been disappointing. Production for the first five months averaged only 5 to 8 per cent more than in 1935, with the output of some manufacturers below that comparative. While orders from the textile and shoe industries have been fairly constant, the quantities taken by the candy, grocery, cosmetic, and drug trades were not on a par with those shipped last year.

Manufacturers specializing in paper cans and tubes reported increases up to 30 per cent over their corresponding 1935 output. The new paper milk containers have benefited some manufacturers, with output running close to a million units a month at some plants, despite the restrictions on their use in several States. Orders for the more elaborate satin-covered and embossed boxes for Fall delivery already have exceeded last year's total.

The severe competition, which has kept prices under the 1935 level, has been one of the chief factors for the lack of progress in the set-up paper box division. Another one has been the shift to Cellophane. The latter has replaced the small boxes formerly used for purses, scarfs, collars, shirts, and countless other varieties of merchandise, as the Cellophane wrapping leaves the contents fresh and clean, despite frequent handling.

In keeping with the general improvement in industrial production, the corrugated and solid fiber shipping container division, as a whole, has maintained its upward trend. Production for the first five months went 12 to 15 per cent ahead of that for the corresponding 1935 period. The amount of increase varied considerably from one section of the country to another, as this branch is relatively sensitive to the activity of consumer goods.

In the last few months, this division has become conscious of increasing costs. In addition to the necessity for providing increased reserves for larger income taxes, social security levies, and other imposts, it is faced with higher costs of raw materials. The latter, in turn, reflect the rising

costs of the producers of these materials, which soon must find expression in upward price revisions in all branches of the trade.

Thus far this year prices have fluctuated narrowly, with some of the changes on the down side. The position of the current price level is best revealed by comparison with the all-commodity index of the Bureau of Labor Statistics. The latter has maintained an almost uninterrupted increase since the depression low to reach 79 per cent of the 1926 average. Containers, on the other hand, stand at only 58 per cent of their 1926 price level.

For the first time since 1932, failures in the paper box industry have increased. The number of paper box manufacturers going into bankruptcy thus far in the current year has averaged about 2 a month, as compared with an average of less than 1 a month for 1935. This brought the total for the first five months of 1936 to 9, which contrasted with 11 for the twelve months of 1935.

The defaulted indebtedness, however, has been running lighter than a year ago. For the 9 failures listed for the five months of 1936, the involved liabilities amounted to $296,821, making the average per failure $32,980. This compared with an average of $34,885 for the 11 failures in 1935, with involved liabilities of $383,734, which was the smallest total for any year back to 1930.

The peak year for failures of paper box manufacturers was in 1932, when the number jumped to 35 from 6 in 1931. Successive declines in the years that followed lowered this total to 11 in 1935, representing a drop of 68.6 per cent. The peak for defaulted indebtedness, however, was not set until 1934, when it amounted to $2,165,618.

Complete Investigation on Pulp

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 8, 1936—Field work has been entirely completed by the Paper Division of the United States Tariff Commission on the investigation and report being made on pulp and pulpwood as the result of the Borah resolution of the first session of the last Congress, S. Res. 200.

In addition to the field work the questionnaires which were sent out have been very generally answered and all replies that will probably be made are now in hand by the Division.

The work of compiling and tabulating the data is now under way and it is expected that a rough draft of the report will be ready for the Commission probably sometime in September. Of course this draft has to be revised and gone over and then rewritten before it is finally sent to Congress. It is probable that the report will be just about ready for Congress when it convenes on January 5 next.

The report will include production, distribution, prices and competition in the United States but does not include any data on any foreign countries. It is thought that this will be the most complete report of its kind ever undertaken by either the government or private industry on this subject.

The Chemical Division of the Commission is making a study of salt cake, somewhat along the lines of the pulp report only not so complete. This later report will probably be published sometime during the coming fall or winter.

Production Ratio Report

The statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES

Month	1936	1935	1934
January	76.1%	65.8%	.....
February	77.9%	70.0%	.....
March	76.0%	70.5%	.....
April	82.3%	70.0%	.....
May	81.7%	69.4%	.....
June	.....	72.3%	.....
July (b)	.....	67.8%	.....
August	.....	70.9%	.....
September (c)	.....	75.0%	59.4%
October	.....	75.6%	64.7%
November	.....	75.3%	61.7%
December (a)	.....	74.3%	62.1%
Year	.....	71.2%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1936		CORRESPONDING WEEKS, 1935	
*June 6	82.0%	June 8	70.5%
*June 13	81.3%	June 15	71.7%
*June 20	80.6%	June 22	73.3%
*June 27	79.9%	June 29	73.6%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting, Current Weeks			
Ratio Limits	June 6, 1936	June 13, 1936	June 20, 1936	June 27, 1936
0% to 50%	77	87	85	63
51% to 100%	256	243	237	173
Total Mills Reporting	333	330	322	236

* Subject to revision until all reports are received.

These data exclude (a)—Christmas Day, (b)—Fourth of July, (c)—Labor Day.

PAPER BOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours," were as follows:

1934	1935	1935	1936
Sept. 62%	Jan. 61%	July 59%	Jan. 61%
Oct. 63%	Feb. 67%	Aug. 65%	Feb. 67%
Nov. 56%	March ... 67%	Sept. 69%	March ... 68%
Dec. (a) . 53%	April 61%	Oct. 76%	April 70%
	May 61%	Nov. 70%	May 68%
	June 65%	Dec. 60%	

Week ending June 6, 1936—64%
Week ending June 13, 1936—70%
Week ending June 20, 1936—70%
Week ending June 27, 1936—71%

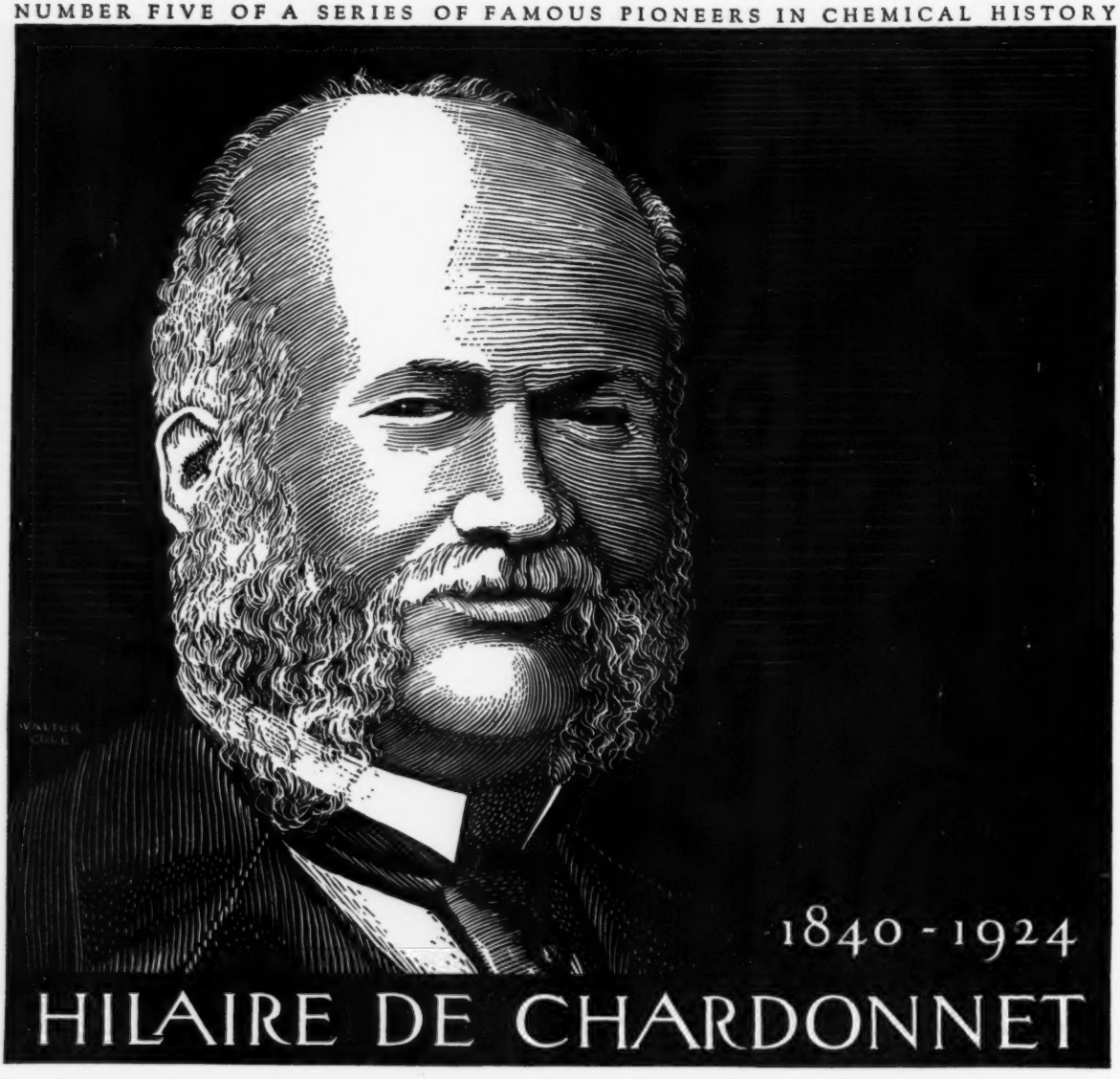
Two New Paper Making Firms in Australia

Two companies have recently been formed in Australia to manufacture paper, a report to the Commerce Department from its Sidney office shows.

The first, known as Associated Pulp and Paper Mills, Ltd., proposes to establish a plant at Burnie, Tasmania, capable of an annual production of 15,000 tons of fine printing, writing and typewriting papers. The authorized capital of the company is £3,000,000 ($12,000,000), but it is understood only £1,200,000 ($4,800,000) will be employed in connection with initial operations. It is reported that plans for machinery and the layout of the mill are in course of preparation in England, and that construction of the plant will be started before the end of the current year, according to the Commerce Department.

The second company is known as the British-Australian Pulp and Paper Company, Ltd. It also has an authorized capital of £3,000,000 ($12,000,000). This company plans to operate as a holding group, and to finance mills for the manufacture of paper pulp from kurukuru grasses of New Guinea, which will be exported to Australia and other countries. The plans also include the manufacture of fine printing and writing papers in Australia, using the pulp obtained from New Guinea. It is reported that as the result of two years research work it is considered to be proved that pulp suitable for the manufacture of a product similar to esparto papers can be produced from kurukuru grasses.

NUMBER FIVE OF A SERIES OF FAMOUS PIONEERS IN CHEMICAL HISTORY



PARIS was startled in 1889 to see for the first time a gown of man-made silk. The silk had been produced by Count Hilaire de Chardonnet and was such an impressive product that funds were readily obtained for the erection of the world's first artificial silk factory at Besançon, de Chardonnet's home town in northern France. From this pioneer venture, followed by other processes and by continuous improvement in product quality over the years, the giant rayon industry of today has developed. Consuming enormous tonnages of chemicals, rayon manufacture also demands chemicals of exceptionally high purity. Mathieson, pioneer producer of high purity caustic soda and other industrial chemicals, is proud of its part in helping to build this great industry.

In 1884, Hilaire de Chardonnet, a French nobleman, patented a process of manufacturing artificial silk in which nitrocellulose was forced through fine capillary openings. His discovery was not a matter of mere chance—it resulted from long study of ways and means of imitating the processes of the silk worm. De Chardonnet's successful and epochal work justly earned for him the title of "Father of the Rayon Industry."

The MATHIESON ALKALI WORKS (*Inc.*), 60 East 42nd St., New York, N.Y.

SODA ASH . . . CAUSTIC SODA . . . BICARBONATE OF SODA . . . LIQUID CHLORINE . . . BLEACHING POWDER . . . HTH AND HTH-15 . . .

Mathieson Chemicals

AMMONIA, ANHYDROUS AND AQUA . . . PH-PLUS (FUSED ALKALI) . . . SOLID CARBON DIOXIDE . . . CCH (INDUSTRIAL HYPOCHLORITE)

Section of the

Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

TAPPI Meeting Reservations Growing

With the near approach of the Summer Meeting of the Technical Association of the Pulp and Paper Industry, August 3 to 7, 1936, reservations, particularly by mill men are speeding up. As in past years, paper and pulp mill engineers, superintendents, chemists and executives have found it necessary to wait until the last minute to decide whether or not they can get away to attend this meeting.

At no time has the Association been able to offer so much interesting variety for its meeting. Beginning on Monday, August 3rd, a full day will be devoted to an intensive consideration of the factors related to the manufacture of paper at high speed and the requirements of the various kinds of pulps to accomplish this conversion.

Two papers of an economic nature will be given; L. T. Stevenson, formerly president of the Mountain Mill Paper Company, will discuss "Forecasting Paper Production," and R. S. Kellogg of the News Print Service Bureau will talk on "The Development of the News Print Industry."

W. T. Bennett of the Canadian International Paper Company will read a paper on "High Speed Paper Machine Operation." L. E. Kendall of the same company will discuss "The Requirements of Groundwood for High Speed Machines," and R. T. Steedman of the Anglo-Canadian Pulp & Paper Company will report on "The Requirements of Sulphite Pulp for High Speed Machines."

F. E. Brauns of the Institute of Paper Chemistry will consider "The Nature of Certain Lignin Derivatives," and S. J. Robinson will report on his investigations of "Rosin Size, Alum and Fibre as Related to the Problems of Paper Making." There will also be a paper discribing the latest developments in the use of the "Minton Vacuum Drier for Paper Drying," by W. G. Mitchell of the Canadian Pulp & Paper Association.

C. E. Curran of the Forest Products Laboratory, Madison, Wis., will report on his study of "The Relation Between Growth Conditions, Wood Structure and Pulping Qualities." C. W. Rivise of Philadelphia, will talk on "What Constitutes Validity of Patents." This talk will be particularly interesting in view of some of the recent patent litigations in the paper industry. O. W. Callighan of Edgar Brothers Company will report on "Recent Developments in the Field of Coated Paper." Donald T. Jackson and John L. Parsons of the Hammermill Paper Company will have a paper on "A Simplified Method for the Rapid Determination of the Available Chlorine Content of Pulp Bleaching Solutions." H. F. Obermanns of the Hammermill Paper Company will probably have a paper on "The Effect of Hemicelluloses on the Beating and Strength of Pulps."

Charles F. Clarkson, vice president of the International Ink Corporation will report on his recent findings regarding "The Physical Characteristics of Paper and Ink to Accomplish Particular Results."

There will also be a number of lectures given to describe what will be seen in the visits to such industrial plants as the Anglo-Canadian Pulp and Paper Company, Donnacona Paper Company, Port Alfred Pulp & Paper Company, Price Bros. Ltd. (Riverbend mill), the Aluminum Company and the power development at Isle Maligne.

There are still a number of excellent staterooms available and a sufficient number of reservations will soon be received to assure the exclusive charter of the S. S. Quebec by the two organizations, TAPPI and the Technical Section of the Canadian Pulp and Paper Association. The meeting offers a wonderful opportunity of combining a typical high grade TAPPI meeting with the various elements of an enjoyable vacation in a real vacation land. Anyone interested in attending the meetings and the cruise will be welcome. Reservations should be made as soon as possible with Leo S. Tobin, 1409 Peel street, Montreal, P. Q.

John Bagg Goes To Parsons Paper Co.

HOLYOKE, Mass., July 7, 1936—John Bagg general manager of the Millers Falls Paper Company has been transferred from that mill at Erving to the Parsons Paper Company at Holyoke where his brother Aaron C. Bagg is president.

Mr. Bagg explained to your correspondent that George Eastwood who has been vice president and manager of the Parsons Paper Company desired to be relieved of his duties on account of his health for the rest of the year so the change was effected.

Business at the Parsons Company is considerably ahead of business for the corresponding period of last year Mr. Bagg said. July and August are generally quiet months in the paper business but a lively fall business is anticipated.

Bamboo Pulp Plant for Philippines

W. Raitt, Woodend, Dorking, England, has just announced the establishment of a company in Manila, P. I. for the production of unbleached bamboo pulp for export to England and the United States.

Bamboo pulp has the same qualities as esparto for producing high class silky surfaced and coated book papers. Its fiber is slightly longer than esparto such as is used widely in Europe. It bleaches with 7 to 8 per cent of standard bleaching powder.

Inquiries for samples should be made directly with Mr. Raitt who has been working on the bamboo pulping problems for many years.

United States Patents on Paper Making

Second Quarter, 1936

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

The following list of patents has been compiled from the current numbers of the Official Gazette of the United States Patent Office. Since, as a rule, only one claim is published in the Gazette, it is not claimed that the list is complete.

Copies of any of the following patents may be obtained from the Patent Office, Washington, D. C., by sending ten cents ($0.10) for each patent desired. At least the name of the patentee, the number and date of the patent should be given. Personal checks and stamps are not accepted in payment for patents.

April 7, 1936

R19,921. Paper bag and process and machine for making same. George W. Poppe, assignor to Equitable Paper Bag Co., Inc., a corporation of New York. Original No. 1,798,168, dated March 21, 1931. Application for reissue June 4, 1935. 18 claims. (Cl. 93-19).

2,036,207. Destroyer for tickets. Carl O. Feddern, Lewis L. Rementer and Walter C. Scott, assignors to Globe Ticket Company, Philadelphia, Pa. Filed July 11, 1933. 8 claims. (Cl. 83-6). A machine for destroying paper, or the like.

2,036,209. Machine for making absorbent pads. Charles A. Fourness and Oscar E. Hagen, assignors to International Cellucotton Products Company, Chicago, Ill. Filed July 11, 1932. 13 claims. (Cl. 154-29). Machine for making sanitary napkins.

2,036,213. Treatment of black liquors. John Arthur Hambly, assignor to Consolidated Paper Corporation Limited, Montreal, Quebec, Canada. Filed June 7, 1933. 9 claims. (Cl. 23-48). Method of smelting the liquor and removing corrosive alkali particles from the producer gas before subjecting it to combustion.

2,036,329. Colored composition shingle. Jeremiah D. Giles, Buffalo, N. Y. Filed Feb. 7, 1935. 13 claims. (Cl. 91-68).

2,036,335. Shelf paper. Edward Karfiol, New York, N. Y. Filed Nov. 7, 1935. 16 claims. (Cl. 41-10). A shelf edging.

2,036,387. Wrapping material. George S. Babcock and Norman F. Beach, assignors to Eastman Kodak Company, Rochester, N. Y. Filed June 15, 1932. 12 claims. (Cl. 91-68). A transparent wrapping sheet, one surface of which is coated with a moisture-proof composition and the other surface being such that a moist water-soluble adhesive will permanently adhere thereto.

2,036,392. Moistureproof paper. Leonard E. Branchen and George R. Clark, assignors to Eastman Kodak Company, Rochester, N. Y. Filed June 27, 1932. 11 claims. (Cl. 91-68). A wrapping paper, with 1-10 per cent of wax homogeneously dispersed therethrough and a coating of nitrocellulose, a plasticizer and a resin.

2,036,422. Method of making decalcomania papers. John MacLaurin, Ware, Mass. Filed Aug. 10, 1933. 1 claim. (Cl. 92-40).

2,036,467. Sound absorptive and fireproof body. George H. Ellis, assignor to The Insulite Company, Minneapolis, Minn. Filed July 31, 1931. 14 claims. (Cl. 154-44). Laminated sheet-like structure.

2,036,588. Shoe stiffener manufacture. Stanley P. Lovell, assignor to Beckwith Manufacturing Company, Dover, N. H. Filed March 5, 1935. 8 claims. (Cl. 91-68). A fibrous base impregnated with nitrocellulose and boric acid.

2,036,606. Chemical purification and modification of cellulose fiber. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Jan. 10, 1935. 15 claims. (Cl. 92-13). The fiber is purified with a mercerizing liquor, then hydrolyzing the fiber to effect a lowering of its solution viscosity and purifying such hydrolyzed fiber in a mercerizing liquor.

2,036,882. Process of making paper. Donald K. Pattilloch and Isabelle B. Pattilloch, assignor to Pattilloch Processes, Inc., Boston, Mass. Filed June 21, 1934. 4 claims. (Cl. 92-21). Cellulose fibers, aluminum sulphate and gelatinized starch are beaten and sodium aluminate is added, binding the starch to the fiber with a precipitate of aluminum hydrate and gelatinized starch.

2,036,883. Bag tube mechanism. George W. Poppe, assignor to Equitable Paper Bag Co., Inc., Brooklyn, N. Y. Filed June 21, 1933. 4 claims. (Cl. 271-2.3).

April 14, 1936

2,037,001. Alcoholic treatment of ligneous cellulosic material. Samuel I. Aronovsky, assignor to The Northwest Paper Company, Cloquet, Minn. Filed July 18, 1934. 21 claims. (Cl. 92-9). The use of an aqueous alcoholic liquor at an elevated temperature is described.

2,037,008. Method of making decorative lustrous sheet material. Elbert A. Corbin, Jr., Gradyville, Pa., assignor of one-half to Wm. C. Biddle, Lansdowne, Pa. Filed Aug. 9, 1934. 2 claims. (Cl. 41-22). A decorative wrapping paper.

2,037,039. Apparatus for baling paper pulp. John Ekern Ott, assignor to Acme Steel Company, Chicago, Ill. Filed Jan. 23, 1932. 1 claim. (Cl. 100-20).

2,037,110. Bag making machine. Ludwig Bischoff, Brooklyn, N. Y. Filed June 9, 1933. 22 claims. (Cl. 93-27).

2,037,119. Continuous bleaching process. Paul Van A. Comey, assignor to R. H. Comey Brooklyn Company, Inc., Brooklyn, N. Y. Filed July 31, 1933. 3 claims. (Cl. 8-2). Use of hydrogen peroxide and ammonia.

2,037,130. Imitation leather and manufacture thereof. Roger Benson Hill, Peabody, Mass. Filed March 28, 1933. 10 claims. (Cl. 91-68). A rubber impregnated fibrous sheet of low specific gravity.

2,037,197. Adhesive applying device for tube forming machines. Arch C. Huston, Los Angeles, Calif. Filed Nov. 24, 1930. 13 claims. (Cl. 91-33).

2,037,205. Method of manufacturing paper tacking sheets. Leslie F. Barnum, Detroit, Mich. Paper saturated with asphalt is used.

2,037,211. Method of baling paper pulp. Arthur Talbot Campbell, assignor to Acme Steel Company, Chicago, Ill. Filed July 28, 1932. 1 claim. (Cl. 100-20).

2,037,242. Paper machinery. Herman L. Kutter, assignor to The Black-Clawson Company, Hamilton, Ohio. Filed Oct. 20, 1930. 5 claims. (Cl. 34-48). A drier roll.

2,037,243. Paper machinery. Herman L. Kutter, assignor to The Black-Clawson Company, Hamilton, Ohio. Filed April 8, 1933. 11 claims. (Cl. 92-43). Means for effecting a controlled position of the fibers to prevent them from assuming a parallel position as they flow onto the forming wire.

2,037,249. Apparatus for baling paper pulp. Chester M. MacChesney, assignor to Acme Steel Company, Chicago, Ill. Filed April 18, 1932. 2 claims. (Cl. 100-20).

2,037,268. Roofing element. Charles S. Reeve, assignor to The Barrett Company, New York, N. Y. Filed Jan. 3, 1931. 1 claim. (Cl. 154-51). A rigid waterproof roofing element.

2,037,398. Coating of surfaces and in the manufacture of coated or compound materials. Gabriel Smith, Leyton, London, England. Filed Oct. 20, 1934. 1 claim. (Cl. 154-47). A compound decorative sheet material having a transparent cellulosic film united to the base by fine lines of adhesive.

2,037,475. Package size indicator for winding machines. John O. McKean, assignor to Foster Machine Company, Westfield, Mass. Filed April 14, 1933. 2 claims. (Cl. 116-114).

2,037,488. Method of decorating paper and the product thereof. Bernard Schiller, assignor to White and Wyckoff Mfg. Company, Holyoke, Mass. Filed Sept. 28, 1934. 9 claims. (Cl. 101-426).

2,037,507. Composition material. Albert C. Fischer, assignor to The Philip Carey Manufacturing Company, Lockland, Cincinnati, Ohio. Filed July 9, 1928. 1 claim. (Cl. 108-8). Weatherproofing strips.

2,037,522. Hard board and method of making same. Thor Axel Ivar Lundbäch, assignor to Aktiebolaget Mo Och Domsjo Wallboard Company, Ornskoldsvik, Sweden. Filed April 25, 1935. 6 claims. (Cl. 92-55). A fibrated lignin-containing cellulosic material and 0.1-10 per cent of an aldehyde are formed into sheets and pressed with heat.

2,037,597. Apparatus for making multicolored paperboards. Charles F. Schaub, Longview, Wash. Filed Feb. 15, 1932. 5 claims. (Cl. 92-42).

April 21, 1936

2,037,776. Apparatus for splicing paper. Horace Freeman and Léonce Gagne, assignors to Consolidated Paper Corporation Limited, Montreal, Quebec, Canada. Filed Dec. 10, 1934. 5 claims. (Cl. 91-14).

2,037,777. Container made of paper and method of making such container. Marshall E. Gazette, assignor to Boothby Fibre Can Company, Boston, Mass. Filed Feb. 4, 1935. 6 claims. (Cl. 229-4.5).

2,037,788. Process and apparatus for producing variegated roofing. Gottfried Hultberg, assignor to The Barrett Company, New York, N. Y. Filed Aug. 26, 1933. 7 claims. (Cl. 91-43).

2,037,822. Process and apparatus for producing variegated roofing. John Robert, assignor to The Barrett Company, New York, N. Y. Filed Aug. 26, 1933. 5 claims. (Cl. 91-43).

2,037,937. Safety paper and method of making same. Francis L. Simons, assignor to George La Monte and Son, Nutley, N. J. Filed May 9, 1933. 28 claims. (Cl. 91-67.95). A soluble ferrocyanide and a slat of the alkali or alkaline earth metals, the pH value of the finished product being 6.2-7.3.

2,038,019. Mulch fertilizer paper. Harold E. Wright, assignor to Central Paper Company, Menasha, Wisconsin. Filed Feb. 18, 1935. 5 claims. (Cl. 47-9). A paper is coated with a nitrogeneous adhesive mixed with soil corrective chemicals.

2,038,023. Asphalt coating material and process of producing same. Wallace A. Craig and Fred E. Griffith, assignors to Wm. C. McDuffie, receiver for Richfield Oil Company of California, Los Angeles, Calif. Filed March 1, 1935. 6 claims. (Cl. 106-31). A high melting, ductile asphalt composition for the manufacture of roofing felt, asphalt shingles, and the like.

2,038,118. Decalcomania paper. John MacLaurin, Ware, Mass. Filed Sept. 17, 1934. 7 claims. (Cl. 41-33).

2,038,228. Process and apparatus for conditioning sheets of paper. Wm. H. Leslie, Toronto, Ontario, Canada. Filed May 22, 1935. 5 claims. (Cl. 34-26). Method of directing an air current against sheets of paper suspended from a rack.

2,038,374. Paper stock preparation. Everett K. Mansfield, New London, Conn. Filed June 14, 1933. 2 claims. (Cl. 92-20). A centrifugal action is used to defiber and hydrate fiber saturated with water.

2,038,406. Mechanism for producing cartons. Leon Benoit, New York, and E. Joseph Kanabay, Nyack, N. Y.; said Kanabay assignor to said Benoit. Filed June 21, 1934. 7 claims. (Cl. 164-90). Die-cutting mechanism for carton blanks.

2,038,502. Machine for cutting or shredding plant leaves, paper and the like. Arthur Podmore, assignor to American Machine and Foundry Company, New York, N. Y. Filed May 10, 1935. 8 claims. (Cl. 146-122).

April 28, 1936

2,038,607. Means and method for manufacturing duplicator sheets. Louis J. Sauer, assignor to Ditto, Incorporated, a corporation of West Virginia. Filed Oct. 9, 1931. 14 claims. (Cl. 91-68). Composition coated strips, the strip being coated with lacquer, then with an adhesive and finally with a composition.

2,038,622. Method and apparatus for determining flowability of coating materials. Frank Wm. Yeager, assignor to The Barrett Company, New York, N. Y. Filed July 6, 1933. 9 claims. (Cl. 73-51).

2,038,658. Method and apparatus for removing bark from timber by means of fluid jets. Karl Johan Karlström, assignor to Wikmanshyttan Bruks Aktiebolag, Wikmanshyttan, Sweden. Filed June 26, 1933. 6 claims. (Cl. 144-208).

2,038,679. Paper making. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Feb. 7, 1934. 14 claims. (Cl. 92-21). A process which comprises beating in water paper-making stock including alkali-solubilizable hydroxy-cellulose ether in fibrous condition and forming the beaten stock into paper.

2,038,708. Paper making machinery. Daniel Catchpole Bert, York, Pa. Filed Dec. 11, 1934. 3 claims. (Cl. 92-49). Suction drum and pressure rolls, the rolls being resilient and decreasing progressively in resiliency.

2,038,712. Apparatus for pressing and dehydrating fibrous materials. Carl Fridolf Brodin, Stockholm, Sweden. Filed Dec. 28, 1932. 4 claims. (Cl. 92-49). An endless sheet of rubber sponge at least one side of which is covered with a reinforcing material.

2,038,721. Machine for the production of molded pulp articles. Herbert John Desmond, assignor to Canadian Keyes Fibre Company, Limited, a corporation of Nova Scotia, Canada. Filed Sept. 7, 1934. 7 claims. (Cl. 92-56).

2,038,780. Method of and apparatus for cooking pulp. Frederick W. Adams, Stoneham, Mass., and George S. Witham, Jr., Lincoln, N. H. Filed Nov. 8, 1934. 7 claims. (Cl. 92-7). Method of preheating cooking acid and circulating it through the digester.

2,038,884. Cutting tool for use with millboard, wallboard and other like material. Ernest Chalmer, Curbiton, England. Filed Sept. 24, 1934. 3 claims. (Cl. 164-83).

2,038,925. Method and apparatus for the treatment of fibrous material. Thomas L. Dunbar, assignor to Chemipulp Process, Incorporated, Water-

town, N. Y. Filed Nov. 20, 1934. 25 claims. (Cl. 92-7). Digester, pretreatment tank, conduit for fibrous material, worm conveyor and means for injecting steam into tank and conduit.

May 5, 1936

2,039,308. Means for extracting water from webs of pulp or paper. Wm. Parsonage Evans, Swinton, England. Filed June 26, 1934. 6 claims. (Cl. 92-52).

2,039,319. Blank-making machine. Cutler D. Knowlton, assignor to Hoague-Sprague Corporation, Lynn, Mass. Filed Nov. 13, 1933. 7 claims. (Cl. 93-36).

2,039,361. Paper manufacture. Joseph Henry Swan, 3d, assignor to The Gardner-Richardson Company, Middletown, Ohio. Filed May 15, 1933. 7 claims. (Cl. 91-68). A greaseproof paper.

2,039,425. Machine for making sanitary napkins. August P. Jurgensen, assignor to The De Long Hook and Eye Company, a corporation of Pennsylvania. Filed June 17, 1933. 20 claims. (Cl. 154-29).

2,039,444. Method of concentrating lyes obtained in the cellulose industry. Erik Öman, and Hans Elis Abraham Göth, assignors to Industrikemiska Aktiebolaget, Stockholm, Sweden. Filed Feb. 21, 1931. 8 claims. (Cl. 23-48). The heat of flue gases from furnaces is used to evaporate sulphate or sulphite waste liquors.

2,039,572. Magazine grinder. Charles Alexander Waterous, Brantford, Ontario, Canada. Filed June 29, 1933. 10 claims. (Cl. 83-75).

2,039,610. Dandy roll. Peter S. Sinclair and Kenneth C. Gosling, assignors to The Sinclair Company, Holyoke, Mass. Filed Oct. 3, 1934. 15 claims. (Cl. 92-48).

2,039,750. Corrugated paperboard machine. George W. Swift, Jr., assignor to George W. Swift, Jr., Inc., Bordentown, N. J. Filed April 20, 1934. 33 claims. (Cl. 154-30).

2,039,753. Process of oil-proofing material and product thereof. Benjamin H. Thurman, Arthur W. Thomas and Morris Mattikow, assignors to Refining, Inc., Reno, Nev. Filed Sept. 21, 1932. 5 claims. (Cl. 91-68). An oil-proof paper having on its surface a film of a composition consisting essentially of water soluble soap.

2,039,776. Method of weatherproofing shingles or like articles. Maurice L. Caton, assignor to The Patent and Licensing Corporation, New York, N. Y. Filed Nov. 23, 1933. 6 claims. (Cl. 91-68).

2,039,780. Paper making machinery. James K. Darby, assignor to Beloit Iron Works, Beloit, Wis. Filed Feb. 27, 1930. 16 claims. (Cl. 92-44). Method of spreading the wire.

2,039,808. Adhesive paper and method of making the same. Harold Kushel, Brooklyn, N. Y. Filed April 23, 1935. 4 claims. (Cl. 91-68). Kraft paper having one surface treated with a water soluble aniline dye, the other surface having a coating of animal glue.

2,039,980. Machine and process for making bags. George W. Poppe, assignor to Equitable Paper Bag Co., Inc., Brooklyn, N. Y. Filed Sept. 30, 1932. 4 claims. (Cl. 93-35).

May 12, 1936

2,040,320. Manufacture of shoe stiffeners. Stanley P. Lovell, assignor to Beckwith Manufacturing Company, Dover, N. H. Filed March 11, 1933. 6 claims. (Cl. 36-77). A porous fibrous foundation impregnated with cellulose ester and a synthetic resin.

2,040,348. Saturated asbestos sheet for gaskets and packing. John H. Victor, Benjamin J. Victor and William A. Heinze, assignors to Victor Manufacturing and Gasket Company, Chicago, Ill. Filed Feb. 21, 1934. 2 claims. (Cl. 91-70). Asbestos millboard impregnated with drying vegetable oils, turpentine and metallic resinates.

2,040,529. Apparatus for saturating absorbent sheet material. John Wesley Pearl, assignor to The Barrett Company, New York, N. Y. Filed Aug. 26, 1933. 3 claims. (Cl. 91-46).

2,040,564. Printed waxed paper. Frederic Ardern Rapley, Golders Green, London, England. Filed June 7, 1933. 5 claims. (Cl. 91-67.9). Paper waxed on one side only, is printed on a side free from wax and the penetration of the wax through the paper is completed.

2,040,608. Method of producing moistureproof and airtight materials. Wilhelm J. H. Hinrichs, Hamburg, Germany. Filed July 21, 1933. 1 claim. (Cl. 154-40). Concentrated latex is applied to the layers, the coated sheets dried and united.

2,040,745. Machine for manufacturing paper excelsior. Warren Joyce, Cleveland, Ohio. Filed Aug. 5, 1931. 6 claims. (Cl. 154-30).

2,040,799. Method and apparatus for making sanitary napkins. George W. Swift, Jr., assignor to George W. Swift, Jr., Inc., Bordentown, N. J. Filed Jan. 13, 1934. 42 claims. (Cl. 154-29).

2,040,801. Method for production of cellulosic materials from waste cellulose products. Wyly M. Billing, assignor to Hercules Powder Company, Wilmington, Del. Filed June 13, 1934. 16 claims. (Cl. 260-10). Reclaiming mattress stuffing to produce a solution of alpha-cellulose.

May 19, 1936

2,040,878. Paper manufacture. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed May 2, 1933. 17 claims. (Cl. 92-21). Alkaline filler and water insoluble sizing material.

2,040,953. Process of making compartment bags. George W. Poppe, assignor to Equitable Paper Bag Co., Inc., Brooklyn, N. Y. Filed July 31, 1935. 5 claims. (Cl. 93-35).

2,041,041. Laminated roofing or sheet product. Clements Batcheller, Portsmouth, N. H. Filed Dec. 23, 1933. 14 claims. (Cl. 18-47.5).

2,041,137. Papermaker's felt. John P. Koester, Piqua, Ohio. Filed Jan. 10, 1936. 1 claim. (Cl. 139-383).

2,041,285. Paper sizing. Judson A. De Cew, Mount Vernon, N. Y. Filed Sept. 28, 1933. 10 claims. (Cl. 92-21). A stream of size is mixed with a stream of non-alkaline pulp fibers and the mixture is discharged into a chest containing pulp, precipitated size and alum, while additional alum is continuously added to the chest.

2,041,294. Method of making paper. Frank J. Lang, assignor to International Paper Company, New York, N. Y. Filed May 8, 1934. 9 claims. (Cl. 92-21). Reclaimed stock is returned to the beater and alum added to the clarified white water, which is thereafter returned to the system prior to the beaters.

2,041,301. Bag making machine. Albert A. Scholl and Abraham Novick, assignors to International Paper Company, New York, N. Y. Filed April 14, 1932. 12 claims. (Cl. 93-27).

2,041,419. Apparatus for making roofing. Lester Kirschbraun, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Nov. 16, 1932. 5 claims. (Cl. 91-18).

2,041,485. Parchment paper and process of making the same. Fred O. Reiss, assignor to The Mantle Lamp Company of America, Chicago, Ill. Filed Feb. 27, 1931. 34 claims. (Cl. 91-70). Paper with 95 per cent alpha cellulose is impregnated with a polymerized alkye-type resin; the paper has a high light-transmissiveness.

2,041,597. Digesting process and apparatus. Thomas L. Dunbar, assignor to Chemipulp Process Inc., Watertown, N. Y. Filed Sept. 1, 1933. 32 claims. (Cl. 92-11). Method of pumping acid liquor from upper portion to bottom portion of digester, utilizing such operation for withdrawing gases from upper portion of the digester.

2,041,666. Cyclic process of treating alkaline pulps. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Dec. 4, 1925. 23 claims. (Cl. 92-9).

May 26, 1936

2,041,696. Insulating board. Philip W. Codwise, assignor to Certain-Teed Products Corporation, New York, N. Y. Filed March 8, 1930. 17 claims. (Cl. 154-55). Groundwood and diatomaceous earth, the plies being felted together and the inner layers containing mixed paper stock.

2,041,745. Manufacture of cellulosic products from wood, straw, grass and the like. Henry Dreyfus, London, England. Filed Feb. 11, 1933. 8 claims. (Cl. 92-2). The material is treated with an alkali metal hydroxide solution of concentration below 5 per cent at a temperature below 50 deg. C. and under atmospheric pressure and then with hot alkali metal bisulphite (ratio SO_2:M_2O between 2 and 2.2).

2,041,761. Shingle. Norman P. Harshberger, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed Oct. 10, 1932. 13 claims. (Cl. 108-7).

2,041,958. Refining cellulose fiber for conversion into cellulose derivatives. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed July 25, 1934. 19 claims. (Cl. 92-1). An alkaline liquor of non-mercerizing strength is first used, followed by another liquor of mercerizing strength at a temperature to avoid the mercerizing activity possessed at room temperature.

2,041,967. Corrugated sheet and process for making same. Frederick W. Schroder and Martin Willis, assignors to R. J. Dorn Co., Inc., New Orleans, La. Filed April 25, 1930. 15 claims. (Cl. 154-33).

2,041,968. Manufacture of rubber-reinforced waterlaid webs of fiber. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed May 16, 1934. 26 claims. (Cl. 92-21).

2,042,017. Decorative corrugated paper. Herman C. Orchard, assignor to Orchard Paper Co., St. Louis, Mo. Filed Aug. 24, 1934. 2 claims. (Cl. 41-24).

2,042,198. Suction box cover. John S. Swauger, assignor to Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. Filed April 28, 1934. 9 claims. (Cl. 92-51).

2,042,243. Method and machine for making diagonally corrugated board. Edgar Watson, assignor to The Nelson Corporation, Baltimore, Md. Filed Sept. 19, 1931. 11 claims. (Cl. 154-30).

2,042,299. Paper material carrying a resin of petroleum origin. Carleton Ellis, assignor to Standard Oil Development Company, New York, N. Y. Filed Sept. 24, 1931. 10 claims. (Cl. 154-40). Laminated paper containing at the laminations a substantially odorless and substantially tasteless oil- and asphalt-free gas-oil synthetic hydrocarbon resin.

2,042,338. Manufacture of pigmented paper. John J. Healy, Jr., assignor to Merrimac Chemical Company, Everett, Mass. Filed Feb. 3, 1934. 5 claims. (Cl. 92-21). Use of zinc sulphide pigment with a rosin sized paper.

June 2, 1936

R19,997. Freeness indicator and recorder. George S. Witham, Jr., Lincoln, N. H. Original No. 1,945,988, dated Feb. 6, 1934. Application for reissue Aug. 24, 1934. 6 claims. (Cl. 92-38).

2,042,465. Process for deinking paper printed with oxidizable inks. Pierre R. Hines, Portland, Ore. Filed Sept. 30, 1935. 8 claims. (Cl. 92-9). The size is dissolved by a suitable liquor, and the ink oxidized by air in alkaline suspension.

2,042,470. Indented shock absorbing cushioning or packing paper. John E. Kieffer, Ewing, Ind. Filed Feb. 26, 1934. 1 claim. (Cl. 154-55).

2,042,472. Machine for making box-parts. Cutler D. Knowlton, assignor to Hoague-Sprague Corporation, Lynn, Mass. Filed May 15, 1934. 93 claims. (Cl. 93-49).

2,042,477. Manufacture of bisulphite liquor. Alvah L. Miller and George M. Darby, assignors to The Dorr Company, Inc., New York, N. Y. Filed Feb. 12, 1931. 17 claims. (Cl. 23-132).

2,042,478. Production of bisulphite liquor. Alvah L. Miller, Ralph W. Shafor and George M. Darby, assignors to The Dorr Company, Inc., New York, N. Y. Filed Dec. 21, 1934. 6 claims. (Cl. 23-130). Method of reacting sulphur dioxide with limestone slurry.

2,042,501. Paperboard. Fred L. Buchanan and Reynolds Guyer, assignors to Waldorf Paper Products Company, St. Paul, Minn. Filed Oct. 22, 1934. 2 claims. (Cl. 92-40). A board containing a black pigment and calcium oxide, with a wax liner on one side and a liner suitable for printing on the other.

2,042,531. Process and machine for the manufacture of tubes made of paper or like material. René Jarrier, assignor to Bartlett Arkell, New York, N. Y. Filed May 1, 1928. 21 claims. (Cl. 93-81).

2,042,566. Stuff treatment machine and junk remover. Charles P. Tolman and James T. Coghill, assignors to The Noble and Wood Machine Co., Hoosick Falls, N. Y. Filed March 28, 1934. 47 Claims. (Cl. 92-20).

2,042,586. Thermal insulator. John Campbell and Robert G. Quinn, assignors to International Paper Company, New York, N. Y. Filed Feb. 24, 1933. 3 claims. (Cl. 154-45). Corrugated paper saturated with asphalt.

2,042,588. Cellulose structure. Wm. Hale Charch and Wm. Frederick Underwood, assignors to Du Pont Cellophane Company, Inc., New York, N. Y. Filed Aug. 3, 1932. 8 claims. (Cl. 91-68). A regenerated cellulose structure impregnated with mineral oils, waxes or greases, suitable for electrical insulation.

2,042,589. Moistureproof material and method of making the same. Wm. Hale Charch and Albert Hershberger, assignors to Du Pont Cellophane Company, Inc., New York, N. Y. Filed Feb. 6, 1934. 20 claims. (Cl. 91-70). A regenerated cellulose is coated with a waxy substance.

2,042,638. Coated materials and method of producing same. John C. Siemann, assignor to Du Pont Cellophane Company, Inc., New York, N. Y. Filed Nov. 21, 1929. 19 claims. (Cl. 91-68). Regenerated cellulose is impregnated with a water-insoluble softener and combined with a moisture-proofing composition.

2,042,676. Apparatus for saturating absorbent articles. Stuart P. Miller, assignor to The Barrett Company, New York, N. Y. Filed Nov. 1, 1932. 3 claims. (Cl. 91-46).

2,042,677. Saturator for absorbent articles. Stuart P. Miller, assignor to The Barrett Company, New York, N. Y. Filed Nov. 1, 1932. 17 claims. (Cl. 91-46).

2,042,678. Process for impregnating fibrous conduits. Stuart P. Miller, assignor to The Barrett Company, New York, N. Y. Filed Dec. 16, 1933. 17 claims. (Cl. 91-46).

2,042,705. Manufacture of cellulose from lignocellulosic products. Henry Dreyfus, London, England. Filed Jan. 4, 1935. 12 claims. (Cl. 92-9). The material is extracted at an elevated temperature with non-phenolic purely organic liquids.

2,042,893. Bandless beater roll and jordan plug. John D. Haskell, assignor to Dilts Machine Works, Inc., Fulton, N. Y. Filed Feb. 7, 1935. 4 claims. (Cl. 92-22).

2,043,018. Method and apparatus for manufacture of drinking cups. Francis P. Swallow, assignor to United States Envelope Company, Worcester, Mass. Filed Feb. 12, 1934. 15 claims. (Cl. 93-49).

2,043,104. Process of making a box. Elie W. Labombarde, Nashua, N. H.; Frank B. Clancy, administrator. Filed Oct. 12, 1932. 1 claim. (Cl. 93-36).

2,043,110. Method of reenforcing and sealing cartons and materials therefor. William W. McLaurin, Brookfield, Mass.; Old Colony Trust Company, executor. Filed April 18, 1931. 6 claims. (Cl. 91-68). An adhesive tape.

2,043,181. Endless conveyor band filter. Marcel Lamort, assignor to E. et M. Lamort Fils, Vitry-le-Francois, France. Filed March 2, 1934. 7 claims. (Cl. 92-36). An endless band of metal gauze for removing caked residue from cellular filters for paper pulp.

JUNE 9, 1936

2,043,351. Method of making a tissue paper product. Charles A. Fourness and James T. Whelan, assignors to International Cellucotton Products Company, Chicago, Ill. Filed June 1, 1935. 3 claims. (Cl. 154-33). A creped tissue paper is forced through a pressure zone, forming an all-over pattern not materially coarser than the creping in the sheet.

2,043,415. Felt cleaner for paper mills. Lawrence L. Lapeyrouse, Chickasaw, Ala. Filed Oct. 1, 1935. 8 claims. (Cl. 92-50). A vacuum head upon one face, a series of rollers mounted in the head and means for discharging water upon the felt.

2,043,545. Method of making shingle strips. Lester Kirschbraun, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Dec. 18, 1931. 13 claims. (Cl. 91-68).

2,043,554. Cutting off mechanism for tube and bag making machinery. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed March 30, 1934. 3 claims. (Cl. 93-33).

2,043,635. Corrugating machine. George W. Swift, Jr., assignor to George W. Swift, Jr., Inc., Bordentown, N. J. Filed April 12, 1935. 9 claims. (Cl. 154-30).

2,043,795. Festoon drier. Charles A. Dickhaut and Charles C. Willis, assignors to John Waldron Corporation, New Brunswick, N. J. Filed Oct. 9, 1933. 7 claims. (Cl. 34-20).

2,043,818. Paper machine slitter knife. Albert John Thibedeau, Ottawa, Ontario, Canada. Filed July 5, 1934. 3 claims. (Cl. 164-60).

JUNE 16, 1936

2,044,012. Multiple impregnating device for paper manufacture. Izador J. Novak, assignor to Raybestos-Manhattan, Inc., Bridgeport, Conn. Filed March 5, 1934. 7 claims. (Cl. 92-40).

2,044,077. Parafining apparatus. Ellis L. Jones, assignor to American Sealcone Corporation, New York, N. Y. Filed July 24, 1929. 10 claims. (Cl. 91-46).

2,044,078. Method of parafining receptacles. Ellis L. Jones, assignor to American Sealcone Corporation, New York, N. Y. Filed Oct. 18, 1934. 5 claims. (Cl. 91-70).

2,044,095. Evaporating process and apparatus therefor. Hugh K. Moore, assignor to Brown Company, Berlin, N. H. Filed Nov. 3, 1933. 10 claims. (Cl. 159.17).

2,044,213. Process of manufacturing hard board. Fergus A. Irvine, New Orleans, La. Filed May 5, 1934. 11 claims. (Cl. 92-21). A bagasse board.

2,044,234. Method of manufacturing wallboard. Gordon R. Walper, Huntington Woods, Mich. Filed Dec. 1, 1933. 7 claims. (Cl. 154-2).

2,044,281. Paper manufacture. James d'A. Clark and John Traquair, assignors to The Mead Corporation, Dayton, Ohio. Filed Sept. 24, 1931. 11 claims. (Cl. 92-40). A forming wire, method of flowing fibrous stock onto the wire, and a method for applying surfacing material.

2,044,411. Device for measuring stiffness of sheet material. Leonce Vaughan, Jr., Hartsville, S. C. Filed Feb. 17, 1936. 5 claims. (Cl. 73-51).

2,044,476. Apparatus for making bags. John Koening, assignor to Benjamin C. Betner Company, Devon, Pa. Filed April 27, 1934. 12 claims. (Cl. 93-27).

2,044,480. Grinding machine for paper pulp. Frank Lord, Radcliffe, England. Filed Sept. 7, 1935. 2 claims. (Cl. 92-26).

JUNE 23, 1936

2,044,781. Shingle roof and material relating thereto. Norman P. Harshberger, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed April 13, 1933. 14 claims. (Cl. 108-8).

2,044,782. Roofing element. Norman P. Harshberger, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed April 13, 1933. 11 claims. (Cl. 108-8).

2,044,783. Shingle. Norman P. Harshberger, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed Dec. 21, 1931. 13 claims. (Cl. 108-8).

2,044,784. Roofing and building material and creation of effect thereon. Norman P. Harshberger, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed April 13, 1933. 16 claims. (Cl. 154-2).

2,044,785. Strip of roofing materials. Norman P. Harshberger, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed Feb. 28, 1933. 2 claims. (Cl. 108-7).

2,044,787. Building element. Norman P. Harshberger and Sidney A. Ochs, assignors to Bakelite Building Products Co., Inc., New York, N. Y. Filed June 12, 1933. 19 claims. (Cl. 108-7).

2,044,788. Roofing material and the like. Norman P. Harshberger and Sidney A. Ochs, assignors to Bakelite Building Products Co., Inc., New York, N. Y. Filed June 12, 1933. 15 claims. (Cl. 108-6).

2,044,804. Wrapping material. James G. McNally and Norman F. Beach, assignors to Eastman Kodak Company, Rochester, N. Y. Filed June 17, 1932. 8 claims. (Cl. 91-68). Cellulose acetate sheet coated with gum, wax and cellulose acetate stearate.

2,044,847. Beating engine. Robert H. Henry, assignor to Simonds Worden White Company, Dayton, Ohio. Filed May 13, 1935. 4 claims. (Cl. 92-22). A beater bar.

2,044,935. Paper box and method of making the same. Clarence Lloyd Claff, Randolph, Mass. Filed June 13, 1935. 1 claim. (Cl. 93-36.6).

2,044,970. Method of coating insulated wire or the like. Albert T. Candy, Jr., Oak Park, Ill. Filed Dec. 18, 1933. 3 claims. (Cl. 91-70).

2,044,987. Paper machinery. Herbert A. Kidd, assignor to The Mead Corporation, Chillicothe, Ohio. Filed Feb. 1, 1934. 10 claims. (Cl. 154-30). Corrugating machine.

2,045,035. Paper roll plug and shaft. Edgar A. La Rock, Ogdensburg, N. Y. Filed March 8, 1935. 4 claims. (Cl. 242-68).

2,045,046. Paper cutting machine. Garrett W. Mudd, assignor to Peters Machinery Co., Chicago, Ill. Filed May 31, 1934. 5 claims. (Cl. 164-49).

2,045,049. Process for the manufacture of new tanning materials. Hermann Noerr and Gustav Mauthe, assignor to I. G. Farbenindustrie Aktiengesellschaft. Frankford-on-the-Main, Germany. Filed Aug. 7, 1935. 15 claims. (Cl. 149-4). Lignin sulfonic acid, a dihydroxy-diaryl sulfone and an aldehyde.

2,045,052. Paper manufacture. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed May 5, 1932. 32 claims. (Cl. 91-68). Method of sizing paper with an alkaline filler.

2,045,095. Process of making porous long fibered nonhydrated paper. Fay H. Osborne, assignor to C. H. Dexter and Sons, Incorporated, Windsor Locks, Conn. Filed July 21, 1934. 19 claims. (Cl. 92-41). Method of separating the fibers without pressure and forming them into a web.

2,045,096. Porous long fibered nonhydrated paper. Fay H. Osborne, assignor to C. H. Dexter and Sons, Incorporated, Windsor Locks, Conn. Filed Nov. 22, 1934. 8 claims. (Cl. 92-3). Paper consists of uncrushed, cylindrical, soft, nonhydrated fibers uniformly distributed to leave uniformly spaced openings throughout the paper.

2,045,139. Colored and flameproofed material. Frederick W. Hochstetter, Pittsburgh, Pa. Filed July 13, 1933. 9 claims. (Cl. 91-68).

2,045,349. Reenforced hydrated cellulose container. Leo A. Goodman, assignor to Visking Corporation, Chicago, Ill. Filed Feb. 4, 1931. 17 claims. (Cl. 91-68). A thin sheet of material is formed by treating long-fibered cellulose material with viscose.

2,045,384. Method of producing insulating mats. William Gerb, Berlin, Germany. Filed Jan. 23, 1935. 2 claims. (Cl. 154-28).

2,045,410. Manufacture of impregnated fiber articles. George A. Richter and Milton O. Schur, assignors to Brown Company, Berlin, N. H. Filed Sept. 23, 1932. 4 claims. (Cl. 91-70). Regenerated cellulose is introduced throughout a porous fiber, which is then impregnated with an aqueous dispersion of heat-fusible, solid water-proofing material and dried.

2,045,423. Roofing and siding. John A. Topping, Bronxville, N. Y. Filed Feb. 20, 1935. 8 claims. (Cl. 108-7).

2,045,468. Insulating composition. Artemy A. Horvath, assignor to Wilmington Fibre Specialty Company, Wilmington, Del. Filed Oct. 27, 1934. 16 claims. (Cl. 91-68). A vulcanized fiber body containing soy bean protein.

2,045,490. Envelope machine. Lewis C. Pearce, assignor to The Standard Envelope Manufacturing Company, Cleveland, Ohio. Filed Sept. 4, 1931. 7 claims. (Cl. 93-61).

2,045,546. Insulating building block. Charles J. Chaplin, assignor to Chaplin Corporation, Portland, Maine. Filed Aug. 26, 1935. 10 claims. (Cl. 92-55).

JUNE 30, 1936

2,045,676. Treatment of fibrous sheet. Quentin L. Wuinlivan, assignor to Celastic Corporation, Wilmington, Del. Filed Nov. 3, 1934. 7 claims. (Cl. 91-70). Method of impregnating a fibrous sheet with cellulose acetate in solution.

2,045,721. Conveying attachment for paper cutters. Jessie Clarence Penwell, assignor to The Miamisburg Paper Company, Miamisburg, Ohio. Filed April 29, 1935. 3 claims. (Cl. 164-68).

2,045,818. Method of and apparatus for producing paper pulp. Frederick W. Adams, Stoneham, Mass., and George S. Witham, Jr., Lincoln, N. H. Filed June 26, 1934. 8 claims. (Cl. 92-7). Means for mixing a liquid with the charge of stock and waste liquor while the stock is flowing through blow-off line.

2,045,852. Wrapper and method of making. Ralph A. Hayward, assignor to Kalamazoo Vegetable Parchment Company, Parchment, Mich. Filed April 22, 1936. 7 claims. (Cl. 91-67.9. Method of making a waxed paper.

2,046,270. Two-stage gravity flow wet end paper making machine. Gerould T. Lane and Wendell Butterfield, assignors to Eastman Kodak Company, Rochester, N. Y. Filed Nov. 25, 1933. 10 claims. (Cl. 92-43).

2,046,271. Controlled leak for paper making machines. Gerould T. Lane and Wendell Butterfield, assignors to Eastman Kodak Company, Rochester, N. Y. Filed Oct. 26, 1935. 12 claims. (Cl. 92-43).

New Handbook of Colorimetry

The Technology Press (Massachusetts Institute of Technology), Cambridge, Mass. has announced the publication of a "Handbook of Colorimetry," the result of three year's work by the staff of the M. I. T. Color Measurement Laboratory under the direction of Prof. A. C. Hardy. Its aim is to facilitate the specification of color both in the laboratory and in industry.

Colorimetry is a relatively new science. Until physical instruments were developed which measure color in terms of quantities and wavelengths of light the only available methods of color specification had of necessity to be based on samples of the various colors. The fact that these samples are subject to change with time, even under the best of conditions, has made it impossible to accumulate an extensive and accurate body of knowledge concerning the diverse phenomena of color and color vision. This handbook is concerned with the basis for the interpretation of the data obtained from physical measurements of colored materials, which may be expressed either in purely physical terms or in terms of the response of the normal observer as defined by the International Commission on Illumination in 1931.

This handbook not only surveys the entire subject of colorimetry for the benefit of those who are approaching the subject for the first time, but also discusses the characteristics of light sources, the physical measurements of colored materials, and the laws of color mixture. The recommendations of the International Commission on Illumination, interpolated to wavelength intervals of one millimicron, are included in this book.

Handbook of Colorimetry sells for $5 per copy and copies may be obtained directly from the Technology Press, Cambridge, Mass.

M. E. Leeds Honored

M. E. Leeds, president of the Leeds & Northrup Company, Philadelphia, Pa., recently received, almost coincidentally, two signal honors: Institute of Management gave him its Gantt Medal for "distinguished achievement in industrial management as a service to the community" and Polytechnic Institute of Brooklyn made him Doctor of Engineering "in recognition of great service to society".

Effect of High Pit Temperature and of Preheating of the Wood on the Grinding of Loblolly Pine*

By E. R. Schafer[1], J. C. Pew[2], and R. G. Knechtges[3]

The results reported here of grinding loblolly pine at high temperatures are believed to be applicable to any coniferous species. Elevation of grinder pit temperatures, with other variables constant, results in longer fibered and stronger pulps in relation to the power consumed. This trend previously reported to 190 deg. F., continues on up to 210 deg. F. Preheating of the wood in water has relatively small effect as compared with the pit temperature. The small beneficial effect noted seems to be due not merely to the elevation in temperature of the wood but to a mild chemical or cooking action taking place during the preheating period. The increased plasticity of the wood when charged at higher temperatures appears to be more of a detriment to quality than an aid. With a stone carrying sufficient water in its surface, the temperature at the woodstone interface is not likely to exceed the boiling point of water at atmospheric pressure. Control of temperature by controlling the pulp carrying capacity of the stone surface is possible but is not so practicable or so easily done as is controlling the pit temperature. Since the results noted cannot be attributed to the effect of heat on the wood it is suggested that the viscosity of the water may be largely responsible.

A previous publication on the effect of temperature in pulpwood grinding *(1)* pointed out that high temperatures in the grinder pit were advantageous in producing longer fibered, stronger pulps, generally with lower power consumption and higher grinding rate. The results reported here are an extension of the prior work. In general three types of experiments were made using (1) higher pit temperatures than previously employed, (2) wood preheated external of the grinder, and (3) steam projected on the stone just before it passed in rotation under the wood.

The loblolly pine used was from the same shipment as that used in part of the previous work. The selection of this species for the present experiments was prompted by the current studies now being made on the effect of growth variables in the pulping of the southern pines. The results of the temperature studies on this species are believed to be applicable to any coniferous species.

Procedure

The equipment and the general methods of operation were the same as previously used with loblolly pine *(1)*. In the present experiments, however, the wood was in all cases brought to a definite temperature before charging into the grinder. This was accomplished by placing the 9-inch long wood bolts in a tank in which water was circulated at the required temperature for approximately five hours. A control bolt with a thermometer inserted to the center was used to determine when the wood was heated to the desired temperature. The wood was left in the tank until required for charging the grinder. No material change in moisture content of the wood or the color of the pulp was caused by this heat treatment. The unit pressure of wood against the stone surface was constant at 14 pounds per square inch and the temperature of the shower water was adjusted so as to give a consistency of pulp in the pit of about five per cent in all experiments. The surface of the artificial stone, from past experience, was known to have remained constant throughout the relatively short time covered by the experiments.

Discussion of Results

The data obtained are summarized in Table I.

Series 1 shows the results of charging wood of a temperature of 60 degrees and grinding it with pit temperatures of 160, 190, and 210 deg. F. This series is similar in part to series 7 of the prior tests *(1)* but because of the slightly different grinding conditions the actual values of pulp strength and power are not comparable with the previous work. Comparison can, however, be made in the general trends. It is noted in series 1 that increasing the pit temperature caused the pulp to become longer fibered and to have greater strength, this tendency continuing above the 190 degrees maximum temperature previously employed.

As previously observed the increase in pit temperature (with other variables constant) caused a consistent decrease in the power input but contrary to the former work the production did not consistently increase. This resulted in irregularity in the power consumed per unit of production which, within relatively narrow limits appeared to increase at 190 degrees and decrease at 210 degrees. From the standpoint of economy of production it is of interest to consider the quality per unit of power consumption, obtained by dividing the strength values by the horsepower days per ton *(2)*[4]. The strength values thus factored are shown in Table I. The most economical use of power seems to be definitely indicated at high pit temperatures. As previously pointed out, however, high pit temperatures must be accompanied with a sufficiently low consistency that the pulp flows freely over the dam.

It is evident that the relation between power consumption and quality is empirical. The energy absorbed in the grinding process represents the resistance of the wood to the various forces made to act upon it and therefore has an influence on the quality only as these forces affect quality. The conditions that bring about improvement in quality often require the consumption of more energy but one does not necessarily follow the other. Therefore, since it is

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[1] Member TAPPI, Engineer, Forest Products Laboratory, Forest Service, U. S. Department of Agriculture, maintained at Madison, Wis., in cooperation with the University of Wisconsin.

[2] Member TAPPI, Associate Engineer, Forest Products Laboratory.

[3] Asst. Scientific Aid, Forest Products Laboratory.

[4] This factor bears a reciprocal relationship to the "quality-price" number used by Brecht in determining the cost of maintaining a given quality.

TABLE I.—EFFECT OF HIGH TEMPERATURES ON THE GRINDING OF LOBLOLLY PINE[1]

Grinder run No.	Grinding conditions[2]: Service of stone since last burring[3] Hours	Temperature of: Grinder: Shower water °F.	Grinder: Pit °F.	Wood: Pre-heated to[4] °F.	Wood: Charged at °F.	Consistency Per cent	Yield per 100 lbs. dry wood: Screened pulp Lbs.	Yield per 100 lbs. dry wood: Screenings Lbs.	Dry wood ground per 24 hours[5] Tons	Power: Input H.P.	Power: Per ton of dry wood[6] H.P.-days	Freeness Schopper-Riegler C.c.	Screen analysis: Retained on 24-mesh Per cent	Screen analysis: Retained between 24- and 42-mesh Per cent	Screen analysis: Retained between 42- and 80-mesh Per cent	Screen analysis: 80- and 150-mesh Per cent	Screen analysis: Passing 150-mesh Per cent	Average screen opening[4] Mm.	Properties of pulp test sheets: Bursting per pound per ream[7] Points	Tearing per pound per ream[7] Grams	Tensile per square inch Pounds	Color analysis Ives readings: Red Parts	Green Parts	Blue Parts	Strength-power factors[8]: Bursting	Tearing	Tensile
SERIES 1.—EFFECT OF VARYING THE GRINDER PIT TEMPERATURE ONLY																												
185	50.0	80	160	60	60	5.8	91.4	0.2	0.56	41.3	53.7	363	2.3	7.0	14.6	20.5	55.6	0.078	0.09	0.43	697	76	67	63	0.17	0.80	1300
194	61.7	127	190	60	60	5.5	90.2	.3	.46	27.3	58.7	350	6.5	9.6	15.2	20.1	48.6	.086	.16	.77	888	81	69	61	.27	1.31	1510
192	58.8	144	210	60	60	5.2	91.2	.4	.46	25.1	54.9	365	9.1	10.7	14.6	19.4	45.6	.090	.17	.92	927	76	69	62	.31	1.68	1690
SERIES 2.—EFFECT OF VARYING BOTH PIT AND WOOD TEMPERATURES																												
187	52.2	80	160	160	160	5.1	91.0	.2	.51	27.6	54.0	348	2.4	6.9	14.4	20.7	55.6	.077	.10	.37	611	76	69	63	.19	.69	1130
191	57.2	80	190	190	190	6.3	89.8	.4	.36	25.3	70.5	358	12.3	11.2	14.9	17.7	43.9	.093	.21	.73	1008	77	70	62	.30	1.03	1530
193	60.2	144	210	210	210	5.4	92.8	.6	.40	25.4	62.7	360	16.3	10.6	13.6	16.4	43.1	.096	.21	1.07	906	77	69	60	.33	1.71	1440
SERIES 3.—EFFECT OF VARYING THE TEMPERATURE OF THE WOOD ONLY																												
185	50.0	80	160	60	60	5.8	91.4	.2	.56	41.3	53.7	363	2.3	7.0	14.6	20.5	55.6	.078	.09	.43	697	76	67	63	.17	.80	1300
186	51.0	80	160	110	110	5.4	94.6	.3	.51	28.4	55.3	348	2.0	6.2	13.3	20.7	57.8	.075	.11	.43	784	79	69	63	.20	.78	1420
187	52.2	80	160	160	160	5.1	91.0	.2	.51	27.6	54.0	348	2.4	6.9	13.4	20.7	57.4	.077	.10	.37	611	76	69	63	.19	.69	1130
188	53.4	80	160	210	210	4.8	95.5	.3	.48	31.2	64.3	368	4.5	9.3	15.3	20.3	50.6	.083	.12	.44	686	75	67	60	.19	.68	1060
SERIES 4.—EFFECT OF BOTH HEATING AND COOLING OF THE WOOD																												
185	50.0	80	160	60	60	5.8	91.4	.2	.56	41.3	53.7	363	2.3	7.0	14.6	20.5	55.6	.078	.09	.43	697	76	67	63	.17	.80	1300
190	55.8	80	160	210	60	5.3	94.0	.3	.46	25.9	56.0	377	6.8	10.1	15.9	20.2	47.0	.086	.15	.49	795	74	67	59	.27	.88	1420
188	53.4	80	160	210	210	4.8	95.5	.3	.48	31.2	64.3	368	4.5	9.3	15.3	20.3	50.6	.083	.12	.44	686	75	67	60	.19	.68	1060
SERIES 5.—EFFECT OF PROJECTING STEAM ON THE STONE AT THE WOOD-STONE CONTACT[9]																												
185	50.0	80	160	60	60	5.8	91.4	.2	.56	41.3	53.7	363	2.3	7.0	14.6	20.5	55.6	.078	.09	.43	697	76	67	63	.17	.80	1300
189	54.7	80	160	60	60	3.8	94.4	.2	.49	28.4	57.7	348	2.6	6.9	15.4	22.5	52.6	.079	.13	.42	879	76	67	60	.23	.73	1520

[1] The wood from shipment 1425 had the following average properties: age, 19 years; diameter, 6.6 inches; volume of springwood, 60 per cent; growth rate, 5.9 rings per inch; specific gravity, based on weight when oven dry and volume when green, 0.445; dryness, 46 per cent.

[2] The pressure of the wood against the stone was 14 pounds per square inch based on the actual thrust delivered by the pressure foot and the area represented by the product of the average diameter of the wood bolts and their length.

[3] The grinder stone was composed of Aloxite abrasive, 406 grit, grade K, bond 30, burred with a 9-cut, 4½-inch lead spiral burr followed by a 4-cut straight burr.

[4] The wood was preheated in water at atmospheric pressure to the predetermined temperature.

[5] Power and production are expressed on the basis of wood ground instead of pulp produced since the latter figures are somewhat inaccurate.

[6] This value, calculated from the screen analysis and the size of the screen openings, is a function of the average fiber length of the pulp.

[7] Based on a 25 x 40 x 500 ream.

[8] These factors are obtained by dividing the strength values by the horsepower days per ton of wood ground and multiplying the quotient by 100 so as to give numbers of the magnitude of the usual strength values.

[9] Steam used in grinder run 189 and not used in grinder run 185.

conceivable that pulps of equal quality may be produced with the consumption of different amounts of energy, the evaluation of quality by means of the factoring of strength values by the power consumed has no theoretical significance and is justified only when used for economic considerations.

The effect of varying the temperature when the wood was preheated to and charged at the pit temperature is shown in series 2. The trend of increased strength with increased temperature is much as shown in series 1. In series 2, however, the bursting-power factor values are slightly higher and the tearing and tensile strengths, except in two instances, slightly lower than in series 1. At 190 and 210 deg. F. the fiber lengths are considerably greater in series 2 than in series 1. The power consumption was markedly higher at the two higher temperatures when the wood was preheated to the grinding temperature. The only advantages of preheating the wood are a slight improvement in bursting strength and a fairly marked increase in fiber length but to accomplish this the preheating and grinding must be done at high temperatures.

This is borne out further in series 3 in which the pit temperature was maintained at 160 deg. F. and the temperature of wood varied from 60 to 210 deg. F. in 50 degree steps. Considering this wide range of temperature variation the results showed surprisingly small differences in pulp quality. The fiber lengths remained unchanged except for a slight increase at 210 deg. F. The strength values factored by the power showed little or no change in bursting strength and a slight decrease in tearing and tensile strengths with increase in the temperature of the wood charged. Prior heating of the wood alone, even to a higher degree than the grinding temperature, apparently had no helpful influence on the pulp produced but tended for the most part in a direction opposite to that generally observed on the effect of increased temperatures. This would indicate that certain advantages claimed in practice as due to the mild warming and steaming that the wood receives in the grinder pocket, either do not exist or must be attributed to other causes in addition to heat and moisture. If benefits accrue it would seem that something more than softening of the wood must be the cause.

The foregoing indicates definitely that (1) improvement in quality results as the temperature at the wood-stone contact increases, (2) a slight improvement in certain pulp properties with an accompanying detriment to other properties results if in addition to raising pit temperatures the entire mass of wood is brought slowly to the grinding temperature in water external to the grinder, and (3) no appreciable benefit is derived by raising the temperature of the wood only.

In connection with the last point it became of interest to determine whether wood so treated is permanently affected or whether the softening action is reversible upon cooling. For run No. 190 the wood was heated to 210 deg. F. according to the procedure adopted and then rapidly cooled to 60 deg. F. and ground at a pit temperature of 160 degrees. The pulp from this run (see series 4) was not only better than that of a similar run (No. 185) in which the wood was not heated, but also better than the run (No. 188) in which the wood was heated to 210 degrees and not cooled before grinding. The strength-power factors indicate further that the wood in this run was ground with the most economical use of power as compared with the other two. The experiment indicates that the wood is permanently affected by slowly heating in water to approximately the boiling point. This permanent alteration is undoubtedly due to a mild chemical reaction or extraction of the wood constituents. An additional fact is that the higher plasticity of the wood charged at high temperature is not so beneficial as hitherto supposed.

In series 5 the effect of heating the stone surface just before it traveled under the wood was noted when the wood was charged at room temperature and the grinder pit maintained at the normal operating temperature of 160 degrees. The heating was accomplished by projecting steam on the stone at that point. Measurement of the amount of steam was not made, therefore the results are only qualitative. That the temperature at the interface was higher than normal is shown by the lowered consistency. A distinct increase in fiber length, bursting-power and tensile-power factors is evident in run No. 189 in which steam was applied as compared with run No. 185 in which no steam was used.

In attempting to account for the effects noted it seems that the controlling causes are not attributable alone to the effect of temperature on the physical properties of the wood. Brecht *(2)* has also reported that the heating of pulp, produced by the "cold" grinding process (European practice) for 30 minutes in water at various temperatures has but little effect on any of the physical properties. Similar experiments at the Forest Products Laboratory with commercial pulp, produced by the "hot" grinding process (American practice), heated at various intervals in boiling water confirm this statement except that it was noted that boiling for only 1 minute caused an appreciable increase in the freeness. Certainly contact with hot water cannot have any effect on the fibre length of the pulp. Hence, as an alternative, for which, at present, there are no data to submit as supporting evidence, it is suggested that the principal factor producing the effects may be the viscosity of the water used as the grinding medium. Certain experiments are in mind that may give information on this point.

Theoretical Discussion of the Heat Developed in Grinding

In the work carried out so far, consideration has been given only to the temperature of the pulp in the pit and prior thermal treatment of the wood. The actual temperatures attained between the wood and stone are probably of most importance but unfortunately these temperatures are very difficult if not impossible to measure. However, the amount of heat developed may be estimated by analysis from several angles of approach. The following example serves to give an idea of the magnitude of these temperatures.

Assume a grinder stone operating with a pressure of 30 pounds per square inch of wood-stone contact. The grinding or friction coefficient as calculated from operating data may be shown to vary from 0.15 to 0.35 or even more. Assume an average of 0.25. Allow one square inch of stone surface to advance one foot under the wood at the above pressure. Then the energy expended will be $30 \times 0.25 \times 1 = 7.5$ foot pounds per square inch of stone surface. This energy is almost entirely transformed into heat, yielding $7.5 \times 0.324 = 2.43$ calories. The heat is absorbed by the stone, by the pulp suspension carried under the wood in the grooves in the stone, and by the new wood ground off. Owing to its mobility and high specific heat the major portion of the heat is probably absorbed by the pulp suspension in the grooves. It is likely that the grooves in the stone surface are full of pulp as they advance under the wood since pulp from the grinder pit is seen to be doctered off at the first block of wood in the first pocket. It may be estimated by rough calculation that the volume of the grooves on a moderately rough stone will be from 0.2 to 0.3 cc. per square inch of stone surface. Assuming 0.25 cc. as an average and that the heat is absorbed entirely by this pulp in the stone surface, the temperature rise attained in one foot of travel would be $2.43 \div 0.25 = 9.7$ deg. C. or $9.7 \times 1.8 = 17.5$ deg. F. Actually some of the heat is absorbed by the stone and by new fibers ground off the wood so that the increase in temperature attained would be less than this amount. Thus from the standpoint of energy input it is seen that with a fairly deeply grooved stone running at ordinary pit temperatures the temperature between the wood and stone could never reach the extreme values sometimes postulated. In the foregoing example, if the pit temperature is 160 degrees, about three feet of continuous wood-stone contact would be necessary for the pulp suspension to reach the boiling point. The explosion theory suggested by Schoengut *(3)* would require steam pressures in excess of atmospheric. A temperature sufficient to cause such pressures is probably seldom if ever attained in the grinding process. Higher temperatures are of course attained when the stone surface does not carry sufficient water to prevent burning of the wood but this is not normal operation.

It is further evident from these considerations that the depth and character of the stone grooves has a decided effect on the temperature produced between the wood and stone. It is possible, by varying the depth and type of burring, that is, by varying the free space under the periphery of the stone, to control the average temperature between the wood and stone without changing the pit temperature. If the amount of pulp carrying space is decreased the average temperature between wood and stone is increased. However, when this is done the range of temperature from the point where the wood and stone first come into contact to the point where the stone emerges is also extended.

The relative advantages of varying the stone surface or the pit temperature may be illustrated by the following example. Assume the preceding grinder stone, which carried 0.25 cc. of pulp per square inch, to be running in a pit at 150 deg. F. and that all the heat developed is absorbed by the pulp in the stone surface. When a given area of the surface first makes contact with the wood the temperature of the pulp in the grooves is 150 deg. F. When the area has traversed one foot the temperature would be $150 + 17.5 = 167.5$ degrees. The average temperature for the one foot travel would be 158.8 deg. F. Now to raise the temperature suppose the pulp carrying space in the stone is decreased by one-half. The pulp in the grooves on entering the wood area would still be 150 degrees but (since to absorb the same quantity of heat the temperature would be doubled) after traversing a distance of one foot the temperature would be $150 + 35 = 185$ deg. F. and the average 167.5 deg. F. On the other hand, if instead of changing the space in the stone surface

the pit temperature had been raised to 159 degrees then the temperature after one foot of travel would be 159 + 17.5 = 176.5 degrees with an average of 167.8 degrees. Thus by raising the pit temperature 9 degrees the average temperature under the wood has been increased an amount equal to that caused by reducing the pulp carrying space in the stone surface one-half. Furthermore, by raising the pit temperature the range of temperature under the wood is only half of that caused by changing the stone surface. It appears that uniform temperatures within narrow limits are more easily obtained by controlling pit temperature than by varying the pulp carrying capacity of the stone surface.

Conclusions

Raising the temperature of the grinder pit, other variables remaining constant, has been found to have marked effects in mechanical pulping. Preheating of the wood in water external to the grinder caused slight effects that may be attributed to a mild cooking or extraction. The increased plasticity of the wood caused by increased temperature had but little influence on the resulting pulp. The experiments as well as the theoretical considerations presented indicate that preheating the wood has only an insignificant effect on the temperature of the wood-stone interface, since the amount of new fiber added during the passage of an area of stone surface through the grinding zone is small in comparison with amount of pulp already in the surface. Consideration of the energy absorbed in the production of groundwood fiber leads to the conclusion that the temperature of the interface is not likely to exceed the boiling point of water at atmospheric pressure.

Since the marked effects observed in controlling the temperature of the grinder pit or of the wood cannot be attributed alone to changes in either the physical properties of the wood or of the pulp it is suggested that the viscosity of the water may be the controlling factor. This may be difficult to prove experimentally but it is believed further work along this line will yield valuable information.

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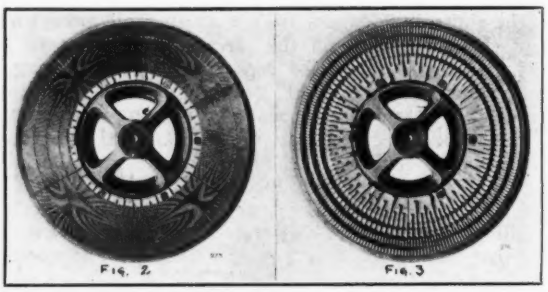
Production of Mechanically Defibered Pulp Masses*

By Arthur S. Cosler[1]

Mechanically prepared fibers of high lignin and pectin content have been finding many new uses in recent years. This trend toward the use of all the weight of the original plant substance has been coincident with the development of almost chemically pure cellulose and its extensive application in many new fields. The two trends reflect the intensive work that is being done by the technicians in the pulp and paper industry. Hence it does not seem credible that almost half a century should have elapsed between the inception of the grinding of wood on stones in America (1876), and the development of another distinctive mechanical device, which would accomplish alone the defibration from the original material to the fiber state without producing appreciable amounts of fiber debris.

Until recently attempts to disintegrate wood, ground wood screenings, or other similar fibrous materials, have consisted mainly of adapting or applying existing types of paper making equipment such as the jordan, beater or other bar machines, or the kollergang, rod mill, and various modifications of such pressure and roller machines. These attempts resulted in crushing or in cutting the tough fiber bundles indiscriminately. This ultimately produced ground or pulverized material rather than separated fibers.

About ten years ago the double disc machine was developed. It applies a rubbing, rolling, and twisting action to the fiber bundles which produces really fibrous stock from raw or steamed, or semi-cooked wood, for use in wall board, insulating board, or in nine-point board for corrugating. It also pulps screenings of sulphite, kraft, and ground wood, so the stock can be returned directly to screens for acceptance as number one stock for news, wrapping, and other grades, in a totally closed system. The results, as measured by the character of the fiber and the savings produced, are such that a much broader application of the machine seems warranted and a more general understanding of its present possibilities should be of value. A few examples of what it is doing and a



FIGS. 2 AND 3
Fig. 2. Fine radial plate (9B01). Fig. 3. Waveline plate (B968-9).

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[1] Engineer, The Bauer Bros. Co., Springfield, Ohio.

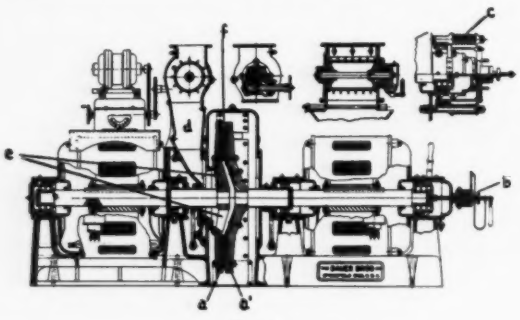


FIG. 1
Bauer double disc refiner.

brief description of the machine, will be the best way to give an idea of its future possibilities.

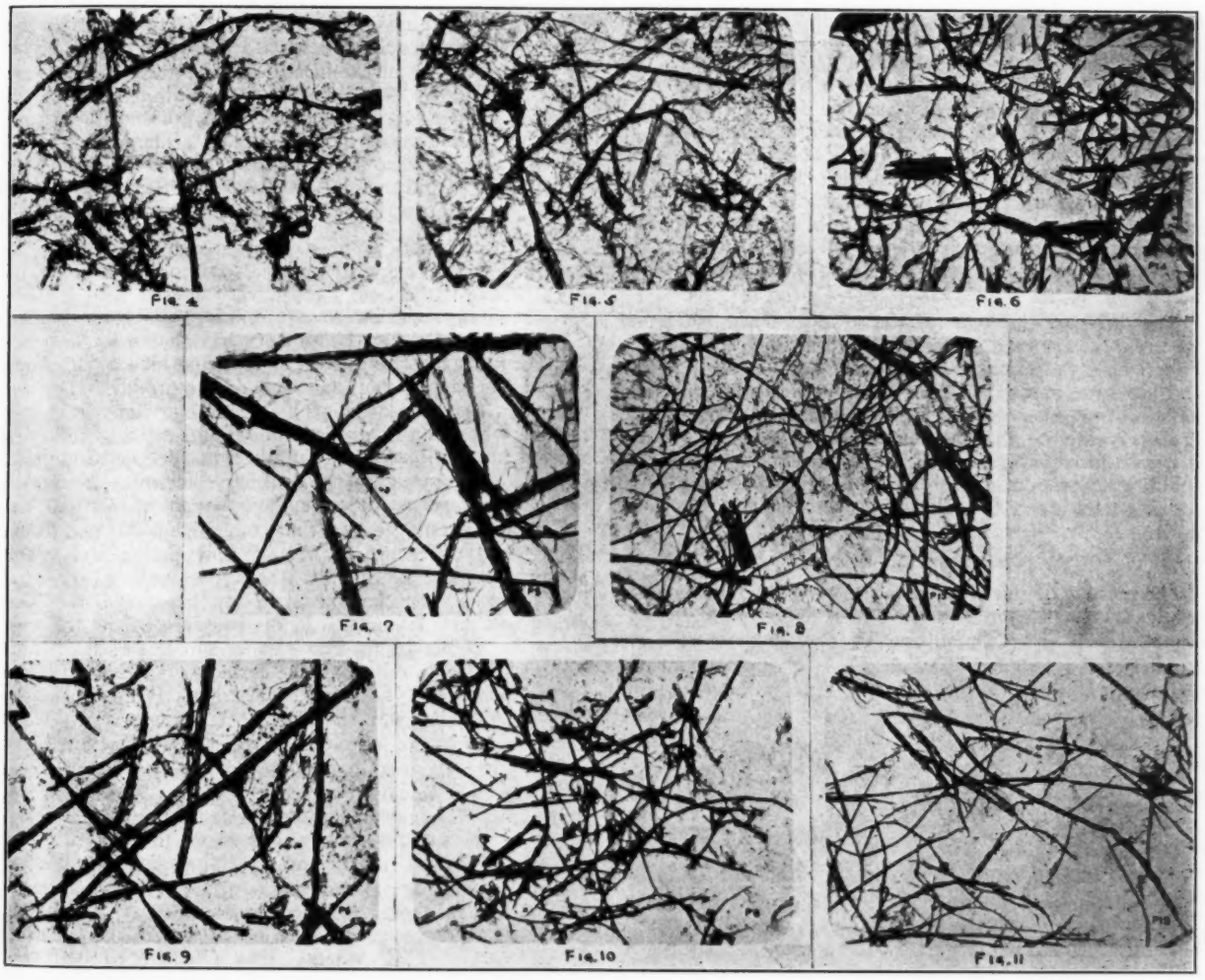
The sectional view of the machine (Fig. 1), shows its distinctive feature, two motors which turn the two discs in opposite directions. These discs *a-á*, are 36 inches in diameter and are held in their relative positions by the adjusting mechanism *b*, providing for a coarse adjustment and a micrometer adjustment of .001 inch in spacing of the discs. The springs at *c* keep the discs in position under proper tension and provide a safe way for the discs to spread apart to pass any foreign material that may enter with the raw material. This enters the trough *d*, passes through the center port *e* and into the refining zone between the plates at *f*. Different types of feeders are used for different materials and are operated by a variable speed drive.

Six plates compose a complete disc and are bolted to the face of each disc by slotted bolt recesses. The plates are edge ground to fit accurately as sectors in the discs and ground face and back to give a disc that will run smoothly against its mate. They are of many different patterns to perform different duties. Number 9B01 (Fig. 2) is a radial plate formed of valleys and ridges proportioned to develop maximum defibering action. With two 1200 r.p.m. motors, the discs have a relative speed under load of 2,300 r.p.m. The relative speed at the periphery is 361 feet per second, or 21,677 feet per minute or 4.1 miles per minute. It carries five circles of ridges from 624 to 48 in the circle and gives 3,774,000,000 inch contacts per minute. It is especially adapted to fine work on hard material such as refining ground wood screenings.

Another plate design, B968-9, called the wave line is shown in (Fig. 3). Its characteristic feature is a series of concentric waves which fit into concentric grooves in the opposite plate. The ridges and valleys in this plate —or more properly here called ribs—are coarser than those in 9B01. At 2,300 differential r.p.m. this plate gives 492,288,000 inch contacts per minute; about one-eighth as many as in 9B01. As might be supposed it is adaptable to higher tonnages on softer stock than 9B01.

Action of Different Plates

Experiment shows that inch cuts per minute are not the determining factor in this machine and cannot be used as a basis of judging what a plate will do. We have three clients, all making the same product from the same



FIGS. 4, 5, 6, 7, 8, 9, 10, AND 11

Fig. 4. News spruce ground wood made in regular type of grinder. Fig. 5. Ground wood screenings refined in double disc refiner. Fig. 6. Poorly refined ground wood screenings. Fig. 7. Poorly refined ground wood screenings (Not made in double disc machine). Fig. 8. Poorly refined kraft screenings (Not from double disc refiner). Fig. 9. Southern pine—double disc refined fibers. Fig. 10. Semi-cooled chestnut double disc refined. Fig. 11. Knotter rejects and screenings double disc refined.

wood, by the same preliminary process as nearly as three different plants ordinarily operate. In one plant our 9B01 is working, in another the waveline B-968-9 is working and in the third plant, a different plate, 950, of a grid type, is running. No one of these plates does as well in either of the other two plants as the plate they are using and yet, inch cuts per minute are many times greater in one case than the other, showing that the results from this double disc machine depend on what happens to the stock between the discs and not what the discs do to the stock.

This double disc pulping machine is distinctive in its action. The bundles of fibrous material are subjected to a rolling and twisting action. As the individual fibers split off, the bundles progress radially outward until discharged from between the plates at the periphery. That this is a rolling action and not a crushing, cutting, action is shown by the resulting fiber, but it is also evident from the fact that the plates are held in position by springs under about only 800 pounds of tension. As the refining area is about 800 square inches the pressure between the plates is only one pound per square inch, far too small to compel a crushing or cutting action.

A few micrographs are reproduced herewith to illustrate the characteristics of this machine's product.

Normal spruce ground wood pulp is shown in Fig. 4, fiber-fibrillae, canals, lignin masses are all showing. The screenings from this ground wood after they have been refined on a Bauer double disc machine are shown in Fig. 5 and exhibit all the same general features, the fibers being completely separated and showing canals, fibrillae and lignin masses. This particular machine was refining about 5.5 tons of spruce ground wood screenings per day. The horsepower consumption was, therefore, around 36 hp.-days per ton of raw wood screenings reduced as compared to 65 horsepower days used on the original ground wood pulp.

The different character of the product when two other type refiners are used is clearly shown in Figs. 6 and 7. In Fig. 6 note the chunks which come from broken slivers and the large amount of fiber debris which seems characteristic of the more drastic action of that type of refiner. In Fig. 7 note the fiber bundles instead of separated fibers. It is a better refining than in Fig. 6 but not as good as the double disc product. The chunks and bundles in Figs. 6 and 7 are of a size to make shives or slivers in the news sheet.

Chemical Pulp Refining

The refining of sulphite screenings gives the same general results. In both spruce groundwood and sulphite screenings the refined refuse is capable of being returned to number one stock and because of fiber length will contribute to the felting qualities in the sheet and not have to be carried as "fines" or fiber debris.

In kraft pulp a more interesting result can be obtained. Fig. 8 shows some kraft screenings—rejects from number one screens, after being refined by the same type refiner as used on ground wood screenings in Fig. 6. Note the characteristic chunks and fiber debris. This machine is refining 3½ tons of screenings per day. Compare that with the product of the double disc machine shown in Fig. 11. That smoothly defibered product comes from a machine handling both screenings and knotter rejects in a kraft mill, not from screenings alone. The horsepower days run are from 15 to 20 per ton of screenings and knotter rejects combined. By this method the expense and loss of weight of recooking are saved in a kraft mill so the savings come from other sources than simply stepping up the grade of an otherwise byproduct material.

Board Manufacture

When we leave the field of screening reject utilization, the results with this machine become more interesting. Ordinary insulating and wall board fiber is being produced in a majority of the plants of the country by this machine, but the product is not shown for it is so well known. Horsepower-day consumption runs about 10 less for the double disc machine than for stones. In the field of light board the results are more interesting again.

Southern pine, old field and loblolly are shown in Fig. 9. The wood was chipped and steamed 3½ hours at 70 pounds pressure with 1 per cent soda ash to protect the digester from rosin and wood acids. The beautiful separation of the fibers on this direct reduction is apparent. Green-freeness of this stock was 340; it required 40 hp.-days per ton and was made for use in nine point board where the balance of the stock was steamed ground wood made by a skillful operator, using about 75.0 hp.-days per ton.

There is a great deal of nine point board being made from semi-cooked chestnut. Fig. 10. shows such a pulp with the characteristic short fibers of the southern hard wood, or almost all deciduous trees for that matter, the loose parenchyma cells which are all quite as characteristic as they would be in chemically cooked pulp of the same variety. The hp.-day consumption on this semi-cooked wood is 7.6 per ton per day, each 200 hp. machine giving 26.4 tons of product per 24 hours. The "semi-cook" leaves the chips quite firm and must not be confused with a reduction to pulp.

Features of the Double Disc Refiner

The characteristic of this double disc machine seems to be the clean defibering of materials without production of fiber debris. It should have a very special field in prebleach refining or in inter stage refining, which the United States Forest Product Laboratory has shown to be beneficial in kraft bleaching, both in reducing bleach consumption and in raising the final color of the product. Drastic action on the fiber at this point would perhaps be detrimental, whereas a controlled rolling and rubbing action is what is needed to separate the fibers and loosen the lignin.

From all we can learn, the distinctive action of the double disc machine seems dependent on two things. First, the rolling and twisting action that comes from the two discs. There is a difference between rolling action and roller action. Put a piece of putty the size of your finger on a board and pass a roller over it in any direction it becomes a flattened piece of putty. If the pressure of the roller is too severe it breaks up into smaller pieces. If this same piece of putty is rolled on the board by the hand, it becomes longer and thinner, and perhaps is twisted also. This is what happens to the fiber bundles in the double disc machine by rolling one end faster than the other.

The other element in obtaining the results of the two discs machine seems to be the high relative speed that can be attained. The positive and clean separation of the fibers shown in the various illustrations seems to be a function of this speed particularly and unattainable in single disc machines which are also manufactured by the same company and have, therefore, been well studied. Perhaps the valleys and ridges passing each other at 22,000 f.p.m. set up violent vortex actions that have much to do with the result. Certain it is that the rolling and rubbing action beween the discs is much more effective proportionately in defibering these rigid materials, than the slower motions of the single disc machine.

Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 8, 1936—The R. P. Andrews Paper Company has been awarded the contract for furnishing the Government Printing office with 93,500 pounds (1,000,000 sheets) of 32 x 42", 25 per cent rag white bond paper at 8.58 cents per pound. Reese & Reese, Inc., will furnish 53,700 pounds (175,000 sheets) of 38 x 48" double coated book paper at 7.09 cents. The R. P. Andrews Paper Company will also furnish 6,525 pounds (20,390 sheets) of 26 x 40" white coated cover paper at 6.67 cents per pound. Bids for all of these items were received on June 22.

The Bryant Paper Company will furnish 80,700 pounds (300,000 sheets) of 38 x 48" single coated book paper at 6.3 cents per pound and the Whiting Paper Company will furnish 19,758 pounds (356,000 sheets) of 23½ x 34", 25 per cent rag green bond paper at 9 cents per pound. Bids for these items were received on June 19.

The R. P. Andrews Paper Company will furnish 43,428 pounds (110.000 sheets) of 100 per cent rag, white chart paper at 17.17 cents per pound. Reese & Reese, Inc., will furnish 14,550 pounds (75,000 sheets) of 20 x 30", 194 pounds, drum head manila paper at 14.5 cents per pound and the Whitaker Paper Company will furnish 5,000 sheets of 100 per cent rag mourning letter paper at $13.60 per M sheets. Bids for these items were received on June 17.

John F. Post, Inc., will furnish 396 pounds (2,000 sheets) of 28 x 42" golden rod coated book paper at 15.75 cents per pound, bids for which were received on June 12.

The Printing Office has received the following bids for 4,000 pounds (2,000 sheets) of binders board: Barton, Duer & Koch Paper Company, at 4.6 cents per pound; R. P. Andrews Paper Company, 4.6 cents; and Mathers-Lamm Paper Company, 4.6 cents.

Indianapolis Reports Some Decline

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., July 7, 1936.—Some decline is reported in demand for several grades of paper in the local trade area. This decline is due entirely to seasonal influences and most members of the trade say it is not as marked as is usual at this time of the year. The slump has hit the fine paper market to some extent, demand for books and covers hardly being as good as it should be. Ledgers are holding fairly well.

In most sections of the state demand for news print continues much better than had been expected. In spite of the vacation season and hot weather, advertising lineage is being held up and the publishers are rather optimistic. They expect, judging from the good summer business, that fall will open with a rush.

The demand for summer specialties is much better than it was this time last year. Extremely hot weather and the holiday Saturday caused an enormous demand for summer specialties last week. All kinds of merchandise in this line are moving with a rush. Towels, napkins, cups, plates, all are in demand. Local tissue makers also report an increase in tissues.

Building paper makers and jobbers are doing a rushing business as compared with recent years. It is probable that the volume of building paper used this spring and summer will be more than double that of a year ago. Prices are somewhat higher than they were last year, but have not advanced in proportion to the increased demand. Every effort is being made to hold prices to a reasonable level in order that building can be encouraged.

Beckett Paper Co. Builds Power House

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, July 7, 1936—Installation of a $100,000 boiler plant is under way at the plant of the Beckett Paper Company, Hamilton. The plant consists of two boilers and auxiliary equipment, a new building and an 180-foot stack.

The improvement is in line with Hamilton industries to provide facilities keeping them in the forefront of respective industrial fields, it is announced. The addition will not directly bring expansion in mill capacity.

In 1928, the Beckett Paper Company's power plant, then located north of the main offices, was abandoned and since then steam has been purchased from the General Machinery Corporation.

The contract for the purchase of steam expires October 1 next and will not be renewed, mill officials state. Thus the boiler plant must be completed by that date and every effort will be made to have the building finished and the two new boilers and auxiliary equipment all installed and in operation by early Fall. The contractors have given assurances that this can be done.

The new boiler plant building is being made of sufficient size that power plant equipment can be installed if the company officials at any time in the future deem it advisable to discontinue the purchase of electrical energy from an outside source.

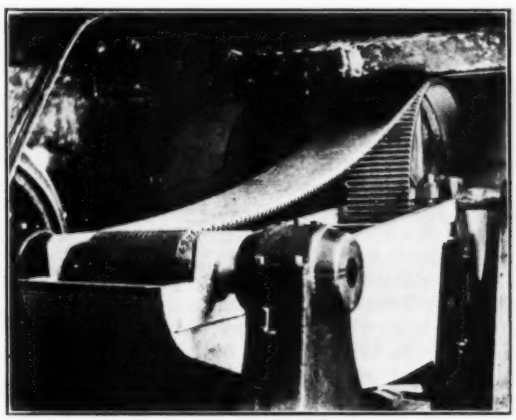
The boiler plant is located on the southeast corner of Fifth and Buckeye streets, Hamilton.

The tall stack was completed two weeks ago and foundations and steel frame work laid for the main building, a one-story brick structure 58 feet in length and 42 feet wide.

The contract for the construction of the building, proper, was awarded to the F. K. Vaughn Building Company of Hamilton.

Morse Chain Drive at Sweet Bros.

The illustration presented herewith shows an interesting chain drive which the Morse Chain Company of Ithaca, N. Y., has recently installed at the tissue paper manufacturing plant of the Sweet Brothers Paper Manufacturing Company, Inc. at Phoenix, N. Y. This chain drive runs from a waterwheel shaft to generator, transmitting 325 h.p. on 133 inch centers, from a 120 r.p.m. waterwheel shaft to a 720 r.p.m. generator. The chain is 1½ inch pitch 16 inches wide, running over 137 and 23 tooth sprockets.



INSTALLATON AT SWEET BROS. PAPER MFG. CO.

F. L. Smith Prepares Plans and Buys Equipment for Three Machine Mill in Cuba

The Frederick L. Smith pulp and paper mill engineering organization of 21 East 40th street, New York, has under way the preparation of plans and the purchasing of equipment for a three machine mill to be erected just outside of Havana, Cuba.

The equipment in this mill will be new and modern in every particular. It will be equipped to manufacture all grades of light weight papers including tissue papers as light in weight as 8 pounds, also all grades and weights of sulphite napkin stock. The mill will make straight Fourdrinier and Yankee Fourdrinier M.F. and M.G. papers and cylinder board papers as well as sulphite bonds.

It will also be designed for the manufacture of all grades of kraft wrapping, bag and other papers including those from bleached kraft.

The manufacture of all grades of board will also be provided for as well as kraft liners on a fast running, electric driven, six cylinder machine.

A modern power plant equipped with boilers operating at 450 pounds pressure, 150 deg. superheat, and turbines generating 3-phase, 60-cycle, 440-volt current will form part of the up-to-the-minute list of equipment with which this mill will operate.

It is understood the mill will be comparable with, if not a little more advanced in its design and equipment than some of the best mills in the United States today.

Contracts are now being placed for the machinery and it is anticipated that the mill will be in operation the latter part of the present year or the very first of the ensuing year.

Philadelphia Paper Industry News

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 6, 1936—The regularly scheduled quarterly luncheon meeting of the Board of Governors of the Paper Trade Association of Philadelphia will be held in the Down Town Club at 12:30 on Wednesday of this week. Norbert A. Considine, president, will preside.

George K. Hooper, president of Hooper Paper and Twine Company and of the Paper and Cordage Association of Philadelphia, with Mrs. Hooper and their daughter Sarah, has opened his cottage at Avalon, N. J., where they will spend the summer.

LeRoy A. Bishop, treasurer of the Paper Trade Association of Philadelphia and treasurer of Raymond & McNutt, is enjoying a short vacation. He is expected back at his desk next week.

William E. Keller, sales manager of Garrett-Buchanan Company, together with Mrs. Keller and their daughter, Margaretta, have leased an apartment at Ocean City, N. J. for the summer.

Miss Betty Merz, secretary to Mr. Keller, is at the shore recuperating from an operation for appendicitis which she recently underwent at Jefferson Hospital. Miss Merz hopes to be able to report for duty next week.

Harry Fleming, manager of the Greeting Card Department of Garrett-Buchanan Company, has just returned to his desk after a six weeks' absence, having undergone an operation for appendicitis.

Boston Paper Business Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 6, 1936—The volume of business in the Boston paper market was sustained fairly well in the last week, with a slight slackening towards the approach of the holiday. It was reiterated that the summer slump would be less pronounced this year than in previous years. A number of fine paper houses had a good month of June. In at least one case, business was much better than during the previous month. In the aggregate, fine paper sales ranged from quiet to pretty good. In wrapping paper lines, reports varied from fair to good. One firm noted that business was somewhat better than a year ago. The paper bag industry was "pretty good." Good sales were made in tissue lines, but competition was such that prices were reported as "terrible." Box board continued quiet.

Very little change developed in the paper stock market. The month of July is usually a quiet period, although up to the present time, the market has held up very well. It is stated in the trade, however, that New York dealers, as well as Boston dealers, think that there will be a sharp upturn in August. Mills that have delayed buying for the last few months will come into the market, thus creating a demand, with an advance in prices. Under old papers, white blank news declined to 1.10 @ 1.15 from 1.20 @ 1.25. Quotations in bagging were unchanged. In new domestic rags, new white shirt cuttings No. 1 declined to .07 @ .07½ from .07½ @ .07¾. In old domestic rags, roofing stock, which had not been selling for the last two months in any appreciable quantity, is looking upward again in the Boston market. Prices are firmer, but as yet unquotably changed. Distress lots of roofing rags which had arrived here are all cleaned up. No more bargain lots are available. Foreign rags were unaltered in price.

Paper Demand Light in Philadelphia

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 6, 1936—Business in both fine and coarse paper divisions here is slightly under that of preceding weeks, but somewhat above the seasonal average. To put it briefly, business in all lines is holding its own, welcoming, of course, all the good factors, not very much afraid of the unfavorable factors but very, very cautious over the factors that depend upon chances for success or failure in the new tax program. The opinion has been expressed by many in the trade here that early Fall should bring a seasonal uplift, and when the uncertain factors are adjusted we will see a marked improvement in volume and tone of all branches of the paper trade.

Joseph Bario Leaves Taylor-Logan Co.

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., July 7, 1936—Joseph Bario of 18 Florence Avenue this city has resigned as superintendent of the Taylor-Logan Company, Papermakers, and is succeeded by John Bachmann of Hillside avenue who was formerly assistant superintendent. Mr. Bario has no plans for the future to announce at this time.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JULY 4, 1936

PAPER HANGINGS

W. H. S. Lloyd & Co., *American Farmer,* London, 7 bls., 2 cs.

WALL BOARDS

Treetex Corp., *Gripsholm,* Gothenburg, 1,310 bdls.; Johaneson Wales & Sparre, Inc., *Gripsholm,* Gothenburg, 66 bdls.; ———, *Argosy,* Sundsvall, 218 bdls.

NEWSPRINT

N. Y. Times Co., *Markland,* Liverpool, N. S., 313 rolls; N. Y. Tribune, Inc., *Markland,* Liverpool, N. S., 1,452 rolls; World Telegram, *Markland,* Liverpool, N. S., 588 rolls; Brooklyn Daily Eagle, *Markland,* Liverpool, N. S., 338 rolls; Clinton Paper Corp., *Markland,* Liverpool, N. S., 405 rolls; Standard Star, *Markland,* Liverpool, N. S., 45 rolls; ———, *Bergensfjord,* Oslo, 291 rolls; International Paper Sales Co., *Cornerbrook,* Dalhousie, 4,428 rolls; Perkins Goodwin & Co., *Hansa,* Hamburg, 156 rolls; Jay Madden Corp., *Hansa,* Bremen, 224 rolls; N. Y. Post, *Leise Maersk,* Port Alfred, 1,433 rolls; Daily Mirror, *Leise Maersk,* Port Alfred, 142 rolls; Gilman Paper Co., *Leise Maersk,* Port Alfred, 336 rolls.

PRINTING PAPER

———, *Normandie,* Havre, 7 bls.; L. A. Consmiller, *Bremen,* Bremen, 49 cs.; ———, *Bergensfjord,* Skien, 81 bls.; Phoenix Shipping Co., *Hansa,* Hamburg, 5 cs.

PACKING PAPER

A. J. Bullinger, *Statendam,* Rotterdam, 13 cs.

WRAPPING PAPER

E. Dietzgen & Co., *Hansa,* Bremen, 72 cs.; Phoenix Shipping Co., *St. Louis,* Hamburg, 52 crates.

FILTER PAPER

Gerhard & Hey, *Statendam,* Rotterdam, 10 cs.; H. Reifenberg, *Hansa,* Hamburg, 40 cs.

CREPE PAPER

———, *St. Louis,* Hamburg, 4 cs.

GUMMED PAPER

G. Gennert, Inc., *St. Louis,* Hamburg, 5 cs.

SURFACE COATED PAPER

Gevaert Co. of America, *Statendam,* Rotterdam, 78 cs.; Globe Shipping Co., *Hansa,* Bremen, 20 crates.

METAL PAPER

———, *Bremen,* Bremen, 3 cs.; K. Pauli Co., *Hansa,* Hamburg, 11 cs.; K. Pauli Co., *Hansa,* Bremen, 47 cs.

BASIC PAPER

Globe Shipping Co., *Hansa,* Bremen, 25 cs., 10 crates.

COLORED PAPER

International F'd'g. Co., *Hansa,* Hamburg, 83 cs.

ALUMINUM PAPER

———, *Bremen,* Bremen, 4 cs.

DECALCOMANIAS

B. F. Drakenfeld & Co., *American Importer,* Liverpool, 9 cs. (duplex).

TRANSFER PICTURES

Rohner Gehrig & Co., *Bremen,* Bremen, 15 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., *American Importer,* Liverpool, 3 cs.; W. J. Byrnes, *Berengaria,* Southampton, 5 cs.; Yabuki & Co., *Kongo Maru,* Kobe, 2 cs.

TRACING PAPER

Dingelstedt & Co., *Bremen,* Bremen, 7 cs.; ———, *Black Gull,* Rotterdam, 8 cs.

WRITING PAPER

Syndicate Alliance Trading Co., *American Importer,* Liverpool, 3 cs.

BOWL PAPER

Hurley Johnson Co., *Laconia,* Liverpool, 18 bls.

STENCIL PAPER

———, *Statendam,* Rotterdam, 2 cs.

BRISTOL BOARDS

———, *American Farmer,* London, 2 cs.

WOOD PULP

A. Giese & Son, *Statendam,* Rotterdam, 10 bls.

WOOD PULP DISCS

A. Giese & Son, *Statendam,* Rotterdam, 6 bls.

BOARDS

Miller Paper Co., *Gripsholm,* Gothenburg, 25 bls.

PRINTED PAPER

L. Gerber, Inc., *American Importer,* Liverpool, 300 rolls.

BOARDING PAPER

Massce & Co., *Normandie,* Havre, 8 pkgs.

STRAW BOARDS

A. Vuyk, *Statendam,* Rotterdam, 72 rolls.

MISCELLANEOUS PAPER

Guaranty Trust Co., *Gripsholm,* Gothenburg, 525 rolls; E. H. Sargent & Co., *Gripsholm,* Gothenburg, 5 cs.; ———, *Normandie,* Havre, 4 cs.; ———, *Hansa,* Hamburg, 723 rolls; Keuffel & Esser Co., *Hansa,* Hamburg, 8 cs., 37 rolls;; Steffens Jones Co., *Kongo Maru,* Kobe, 4 cs.; Moller Products Corp., *Kongo Maru,* Kobe, 19 cs.

RAGS, BAGGINGS, ETC.

Manufacturers Trust Co., *Pr. Monroe,* Bombay, 144 bls. cotton waste; Alex Jacob & Co., *Pr. Monroe,* Bombay, 286 bls. rags; A. Searle *American Farmer,* London, 13 bls. paper stock; ———, *American Farmer,* London, 92 bls. rags;Royal Manfg. Co., *American Importer* Manchester, 50 bls. cotton waste; E. Butterworth & Co. Inc., *American Importer,* Manchester, 45 bls. bagging; ———, *American Importer,* Manchester, 17 bls. old strings; M. Snedeker Corp., *American Importer,* Liverpool, 226 bls. paper stock, J. J. Ryan & Sons, Inc., *Belfast Maru,* Shanghai, 150 bls. cotton waste; W. Garretson, *Belfast Maru,* Shanghai, 480 bls. rags; New England Waste Co., *Belfast Maru,* Shanghai, 50 bls. cotton waste; Philadelphia National Bank, *Belfast Maru,* Kobe, 250 bls. rags; Globe Sanitary Products Corp., *Belfast Maru,* Kobe, 60 bls. rags; ———, *Transylvania,* Glasgow, 18 bls. jute cuttings; ———,

Transylvania, Glasgow, 75 bls. paper stock; Glaser Jaffe Woolstock Co. Inc., *Laconia,* Liverpool, 34 bls. new cuttings, Amtorg Trading Corp., *Jean Jaures,* Leningrad, 1592 bls rags; Irving Trust Co., *Hansa,* Hamburg, 180 bls. rags; New England Waste Co., *Kongo Maru,* Kobe, 600 bls. cotton waste; C. Tennant Sons Co., *Kongo Maru,* Kobe, 100 bls. cotton waste; Castle & Overton, Inc., *American Legion,* Buenos Ayres, 33 bls. old canvas; F. Stern, *Blommersdyk,* Rotterdam, 69 bls. bagging; Darmstadt Scott & Courtney, *Blommersdyk,* Rotterdam, 103 bls. bagging; ———, *Blommersdyk,* Rotterdam, 10 bls. rags; E. J. Keller Co. Inc., *Exchester,* ———, 206 bls. rags; E. J. Keller Co. Inc., *Tai Shan,* ———, 63 bls. paper stock; Chase National Bank, *Tai Shan,* Kobe, 400 bls. bagging; S. Shapiro & Sons, *Argosy,* Gdynia, 141 bls. rags.

OLD ROPE

Chase National Bank, *American Farmer,* London, 44 coils; Manufacturers Trust Co., *American Farmer,* London, 55 coils; W. Steck & Co., *Blommersdyk,* Rotterdam, 49 coils.

CASEIN

———, *Normandie,* Havre, 215 bags.

WOODPULP

A. Giese & Son, *Statendam,* Rotterdam, 40 bls. wood pulp; Bulkley Dunton & Co., *Statendam,* ———, 610 bls. wood pulp; E. M. Sergeant Pulp & Chemical Co., *Gripsholm,* Gothenburg, 113 bls. kraft soda pulp; Perkins Goodwin & Co., *Bergensfjord,* Drammen, 500 bls. sulphite; E. M. Sergeant Pulp & Chemical Co., *Bergensfjord,* Oslo, 300 bls. chemical pulp; ———, *Bergensfjord,* Oslo, 50 bls. mechanical pulp; Irving Trust Co., *Bergensfjord,* Oslo, 1010 bls. mechanical pulp; Guaranty Trust Co., *Hansa,* Hamburg, 504 bls. sulphite 1001 tons; Castle & Overton, Inc., *Hansa,* Hamburg, 625 bls. wood pulp, 125 tons; Chemical Bank Trust Co., *St. Louis,* Hamburg, 2800 bls. wood pulp 432 tons; J. Andersen & Co., *Argosy,* Stockholm, 600 bls. sulphite, 101 tons; Gottesman & Co. Inc., *Argosy,* Stockholm, 450 bls. sulphite, 76 tons; Gottesman & Co. Inc., *Argosy,* Sundsvall, 150 bls. sulphate, 25 tons; Perkins Goodwin & Co., *Argosy,* Sundsvall, 1050 bls. sulphite, 175 tons; Perkins Goodwin & Co., *Argosy,* Sundsvall, 300 bls. sulphate, 50 tons; Price & Pierce, Ltd., *Argosy,* Hernosand, 9000 bls. unbleached sulphate, 1500 tons; Lagerloef Trading Co., *Argosy,* Helsingfors, 130 bls. mechanical pulp, 26 tons; Gottesman & Co. Inc., *Argosy,* Helsingfors, 1608 bls. mechanical pulp, 272 tons; Bulkley Dunton & Co., *Blankaholm,* ———, 200 bls. wood pulp, 41 tons.

WOODPULP BOARDS

H. Fuchs & Son, *Gripsholm,* Gothenburg, 223 crates; Salwen Paper Co., *Gripsholm,* Gothenburg, 51 bls.; ———, *Blankaholm,* Viipuri, 202 rolls; Jay Madden Corp., *Blankaholm,* Kotka, 69 rolls.

WOOD PULP SHEETS

———, *Hansa,* Hamburg, 75 bls.

NEWARK IMPORTS

WEEK ENDING JULY 4, 1936

H. G. Craig Co., *Newscarrier,* Donnacona, 324 rolls.

PORTLAND IMPORTS

WEEK ENDING JULY 4, 1936

Bulkley Dunton & Co., *Bjonn,* ———, 250 bls. wood pulp; Bulkley Dunton & Co., *Blankaholm,* ——— 3200 bls. wood pulp.

NEW LONDON IMPORTS

WEEK ENDING JULY 4, 1936

Pagel Horton & Co. Inc., *Heddernheim,* Sweden, 611 bls. sulphite.

BOSTON IMPORTS

WEEK ENDING JULY 4, 1936

E. J. Keller Co. Inc., *Belfast Maru,* ———, 100 bls. rags; Great Eastern Packing & Paperstock Corp., *Belfast Maru, Shanghai,* 100 bls. rags; ———, *Laconia,* Liverpool, 5 bls. threadwaste; ———, *Laconia,* Liverpool, 42 bls. rags; ———, *Laconia,* Liverpool, 526 bags hide cuttings; G. F. Malcolm, Inc., *Laconia,* Liverpool, 6 cs. tissue paper; Loumar Textile By Products Co., *Tai Shan,* Kobe, 200 bls. bagging; New England Waste Co., *Tai Shan,* Kobe, 60 bls. cotton waste; Parsons & Whittemore Inc., *Chemnitz,* ———, 900 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 4, 1936

Philadelphia National Bank, *Belfast Maru,* Kobe, 100 bls. cotton waste; American Cotton Products Co., *Belfast Maru,* Shanghai, 100 bls. cotton waste; J. Andersen & Co., *Argosy,* Helsingfors, 600 bls. mechanical pulp, 101 tons; Lagerloef Trading Co., *Argosy,* Helsingfors, 130 bls. mechanical pulp, 26 tons; Gottesman & Co. Inc., *Argosy,* Sundsvall, 600 bls. mechanical pulp, 100 tons; Gottesman & Co. Inc., *Argosy,* Sundsvall, 3000 bls. sulphate, 500 tons; Perkins Goodwin & Co., *Argosy,* Sundsvall, 600 bls. sulphite, 100 tons; E. J. Keller Co. Inc., *Black Falcon,* ———, 921 bls. paper stock.

CAMDEN IMPORTS

WEEK ENDING JULY 4, 1936

Perkins Goodwin & Co., *Argosy,* Sundsvall, 3000 bls. sulphite, 500 tons.

WILMINGTON IMPORTS

WEEK ENDING JULY 4, 1936

Price & Pierce, Ltd., *Heddernheim,* ———, 1125 tons unbleached sulphite, Pagel Horton & Co. Inc., *Heddernheim,* Sweden, 2100 bls. sulphite.

BALTIMORE IMPORTS

WEEK ENDING JULY 4, 1936

Philadelphia National Bank, *Belfast Maru,* Kobe, 167 bls. rags; Congoleum Nairn Co., *Exchester,* Marseilles, 159 bls. rags; Bulkley Dunton & Co., *Teneriffa,* ———, 875 bls. wood pulp, Bulkley Dunton & Co., *Breedyk,* ———, 464 bls. wood pulp; Gottesman & Co. Inc., *Heddernheim,* Sweden, 4000 bls. wood pulp; Price & Pierce, Ltd., *Heddernheim,* ———, 300 tons unbleached sulphite; Price & Pierce, Ltd., *Heddernheim,* ———, 550 tons unbleached mechanical pulp; Pagel Horton & Co. Inc., *Heddernheim,* Sweden, 1800 bls. sulphite; Pagel Horton & Co. Inc., *Heddernheim,* Sweden, 7062 bls. sulphate.

NEW ORLEANS IMPORTS

WEEK ENDING JULY 4, 1936

Parsons & Whittemore, Inc., *Osiris,* ———, 210 bls. wood pulp.

ATLANTA IMPORTS

WEEK ENDING JULY 4, 1936

———, *Cornerbrook,* Cornerbrook, 20 rolls newsprint.

HOUSTON IMPORTS

WEEK ENDING JULY 4, 1936

———, *Cornerbrook,* Cornerbrook, 1999 rolls newsprint; International Paper Sales Co., *Cornerbrook,* Dalhousie, 1682 rolls newsprint.

LOS ANGELES IMPORTS

WEEK ENDING JULY 4, 1936

———, *Belfast Maru,* Shanghai, 200 bls. rags; Frazar &

(Continued on page 40)

J. Andersen & Co.

Selling Agents

21 East 40th Street

New York

CHEMICAL & MECHANICAL PULP

Kraft Pulp

BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
KALIX TRÄINDUSTRI AKTIEBOLAG
Vanaförden, Sweden
MUNKSUNDS AKTIEBOLAG
Munksund, Sweden
NENSJÖ CELLULOSA A.-B.
Sprängsvikén, Sweden

Unbleached Sulphite

AKTIESELSKABET GREAKER CELLULOSEFABRIK
Greaker, Norway
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
CELLULOSEFABRIKS A.-G.
Bratislava, Czecho-Slovakei
SVANÖ AKTIEBOLAG
Svanö, Sweden

Bleached Sulphite

KELLNER-PARTINGTON PAPER PULP CO., LTD.
Sarpsborg, Norway
Edsvalla, Sweden
Hallein & Villach, Austria

West Virginia Pulp and Paper Company

230 Park Ave.
New York

35 East Wacker Drive
Chicago

503 Market St., San Francisco, Cal.
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KRAFT CYLINDER BOARD.
BLEACHED SULPHITE AND SODA PULP.
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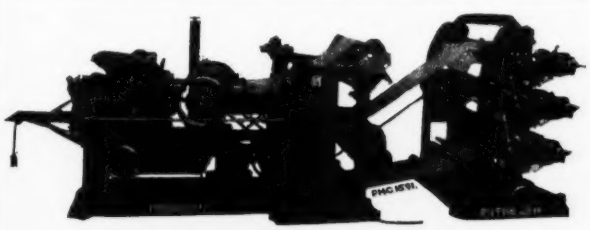

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NOTION BAG MACHINE

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OVER 850 BAGS PER MINUTE
PRODUCES BOTH FLAT & SQUARE BAGS
FULL RANGE OF 6 STANDARD NOTION BAGS
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BROOKLYN, N. Y.
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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, July 8, 1936.

Conditions in the local paper market are fairly satisfactory for the time of year. Although demand for the various grades of paper is only moderately active, due to holiday reactions, the outlook for the future is considered bright, in most quarters. Prices are generally holding to formerly quoted levels.

The newsprint paper market is exihibiting a stronger undertone. Manufacturing operations in the United States, Canada and Newfoundland are proceeding at a good pace, to take care of the heavy demand from publishers of the leading newspapers. The price situation is clearing and talk of advances in the near future is persistent.

While the fine paper market is rather quiet at present, demand for book, cover, bond and ledger papers is expected to be more lively with the approach of Autumn. Tissues are moving in fairly good volume, although prices are spotty. The coarse paper market is displaying strength. Kraft specialties are in seasonal request.

Mechanical Pulp

The ground wood pulp market is moderately active. Production in North America and abroad is practically keyed to consumption and the statistical position of the industry is regarded as sound. Shipments against contract are moving in normal volume for the season. No radical price changes have been reported of late.

Chemical Pulp

Sentiment in the chemical pulp market continues optimistic. Demand for both domestic and imported grades is well sustained, despite a slight falling off due to the holidays. Bleached sulphite pulp and kraft pulp are still very firm, with offerings scarce and quotations strong. Other grades of chemical pulp are steady.

Old Rope and Bagging

The position of the old rope market is practically unchanged. Paper mill demand for both domestic and foreign old manila rope is light. Mixed strings are moving slowly. Old rope prices are steady. The bagging market is fairly active. Demand for scrap and gunny bagging is satisfactory for the season. Roofing bagging is holding up well.

Rags

Paper mill demand for domestic rags is seasonally dull. New cotton cuttings are attracting little interest at present. No. 1 white shirt cuttings are slighly easier. Old cotton rags are fairly steady. Roofing grades are holding up fairly well. The imported rag market is rather soft and quotations of the various grades are nominal.

Waste Paper

The lower grades of paper stock are listless at present, affected by the midsummer holiday lull. There are signs, however, that demand from the board mills will be more lively in the near future, when stocks will require replenishing. Quotations on strictly folded news and No. 1 mixed paper remain unchanged. The higher grades of waste paper are firm.

Twine

Business in the local twine market is about normal for the period and is generally running ahead of last year's record. Demand for the various varieties of twine is moderately active. While competition for desirable orders is as keen as ever, prices are generally holding to schedule and shading is infrequent.

Tissue Brands Complaint Dismissed

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 8, 1936—Dismissal of a complaint charging unfair competition in the sale of medicated cleansing tissue has been ordered by the Federal Trade Commission in the case of Tissue Brands, Inc., 27 West 24th Street, New York City. The complaint treated to representations made by the respondent concerning its product "Sankerchief," manufactured from paper and impregnated with various medicaments commonly used in treating colds.

Harold Holden Goes With Oxford Miami

The Oxford Miami Paper Company has announced that, as of July 1, 1936, Harold Holden has been appointed assistant mill manager of the Oxford Miami Paper Company at West Carrollton, Ohio.

Previous to this appointment, Mr. Holden was connected with the Paper Makers Chemical Company as Eastern sales manager.

IMPORTS OF PAPER AND PAPER STOCK

(Continued from page 38)

Co., *Tai Shan,* Yokohama, 93 bls. rags; Pioneer Flintkote Co., *Tai Shan,* Yokohama, 120 bls. rags.

SAN FRANCISCO IMPORTS

WEEK ENDING JULY 4, 1936

Frazar & Co., *Tai Shan,* Yokohama, 200 bls. rags; F. F. S. Harper & Co., *Tai Shan,* Kobe, 5 cs. paper.

MONTREAL IMPORTS

WEEK ENDING JULY 4, 1936

Gottesman & Co. Inc., *Braheholm,* Sweden, 18600 bls. wood pulp; Pagel Horton & Co. Inc., *Braheholm,* Sweden, 4797 bls. sulphite; Pagel Horton & Co. Inc., *Braheholm,* Sweden, 3960 bls. sulphate.

SPEED
GREATER OUTPUT
LESS
MAINTENANCE

features of
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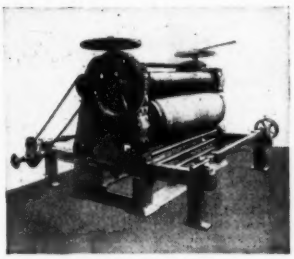
that appeal to plant managers

Every WALDRON Machine is expressly designed to effect savings by increasing production efficiency and not by decreasing quality of materials or workmanship. Their performance has proven this fact.



Waldron "Centennial" Embossing Machine equipped with Waldron Rolls

Machinery for Embossing, Printing, Coating, Lacquering, Waxing, Combining, Crepeing, Slitting, Winding. *Engineering data and descriptive literature gladly sent upon request.*

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Old micrometers, scales and other testers recalibrated and made over like new.

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BRILLIANCY
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LIGHT FASTNESS
of your white paper?

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BLUE *has*

Rapid Dispersion
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Excellent Fastness-to-Light

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, July 8, 1936.

BLANC FIXE.—Business in the blanc fixe market is moderately active. Prices are holding to formerly quoted levels. The pulp is quoted at $42.50 to $45 per ton, in bulk; while the powder is selling at 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—The position of the bleaching powder market is unchanged. Shipments against contract are moving in fairly good volume. Prices continue steady. Bleaching powder is quoted at $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN.—The casein market is fairly active. Domestic standard ground is quoted at 15 and finely ground at 15½ cents; while French and Argentine standard ground are selling at 15¼ cents and finely ground at 15½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Paper Mill demand for caustic soda is satisfactory for the season. The contract movement is normal. Solid caustic soda is still quoted at $2.55 to $2.60; the flake and ground are selling at $2.95 to $3 per 100 pounds, in drums, at works.

CHINA CLAY.—The china clay market is displaying strength. Supplies are moving into consumption in good volume. Imported china clay is quoted at $12.50 to $21 per ton, ship side; while domestic paper making clay is selling at $6.50 to $12 per ton, at mine.

CHLORINE.—Conditions in the chlorine market are satisfactory. The contract movement is well up to average for the time of year. Prices are holding to schedule without difficulty. Chlorine is quoted at $2.15 to $2.55 per 100 pounds, in tank cars, at works.

ROSIN.—The rosin market is stronger. Paper making gum rosin is now quoted at $4.85 and wood rosin at $4.70 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.67½ per 100 pounds. in tank cars, at works.

SALT CAKE.—Steadiness prevails in the salt cake market. The contract movement is normal. Salt cake is quoted at $12 to $13; Chrome salt cake at $11 to $12 per ton, at works. Imported salt cake is selling at $12 to $13 per ton, ship side.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Contract shipments are moving regularly. Prices are steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk. $105; in bags, $1.20; and in barrels, $1.50.

STARCH.—No radical changes transpired in the starch market. Demand from the paper mills is routine. Prices are holding to schedule. Special paper making starch is quoted at $3.20 per 100 pounds, in bags; and at $3.47 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Demand for sulphate of alumina is fairly brisk. The contract movement is good for the season. Prices remain unchanged. Commercial grades are quoted at $1.35 to $1.60; and iron free at $2 to $2.25 per 100 pounds, in bags, at works.

SULPHUR.—The sulphur market is steady. Yearly contracts are quoted at $18 per ton, in bulk, on orders of 1,000 tons, or over and $20 on smaller quantities. On spot and nearby car loads the quotation is $21 per ton. All quotations are in car lots, at works.

TALC.—Trading in the talc market is only moderately active. The contract movement is seasonal. Prices remain unchanged. Domestic talc is quoted at $16 to $18 per ton, at eastern mines; while imported talc is selling at $23 to $30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers—Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50 @	8.50
No. 2 Sulphite	6.50 @	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

Book, B Grade, Cased

S. & S. C.	5.85 @	6.60
S. & S. C. Litho.	6.10 @	6.85
M. F.	5.60 @	6.35

No. 4 Grade

Coated and Enamel	6.80 @	7.65
Coated Litho	6.80 @	7.65

Tissues—Per Ream—

White No. 1	.82½ @	—
White No. 1 M. G.	.77½ @	—
White No. 1½	.62½ @	—
White No. 2	.60 @	—
Anti-Tarnish M. G.	.67½ @	—
Colored	.80 @	—
Kraft	.67½ @	—
Manila	.60 @	—
Unbleached Toilet.	2.60 @	3.30
Bleached Toilet	3.94 @	5.26

Paper Towels—

Unbleached	2.10 @	3.35
Bleached	3.30 @	3.70

Manila—

No. 1 Jute	9.00 @	9.25
No. 2 Jute	7.75 @	8.50
No. 1 Wood	4.00 @	5.25
No. 2 Wood	3.50 @	4.00

Fibre Papers—

No. 1 Fibre	4.25 @	5.50
No. 2 Fibre	4.00 @	4.75

(Delivered New York)

News, per ton—

Roll, contract	41.00 @	—
Sheets	46.00 @	—

Kraft—

No. 1 Northern	4.25 @	4.75
Standard	4.12½ @	—
Southern	4.00 @	—

Boards—per ton—

News	32.50 @	35.00
Chip	32.50 @	35.00
Sgl. Mla. Lt. Chip.	45.00 @	47.50
Jute Lined Chip	42.50 @	45.00
Kraft Liners	60.00 @	62.50
White Pat. Coated.	55.00 @	57.50
Binders Boards	67.00 @	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—

Moist	24.00 @	25.00
Dry	24.00 @	25.00

(Delivered)

No. 1 Domestic and Canadian 27.00 @ 28.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—

Division 1	2.70 @	3.10
Division 2	2.65 @	2.75
Division 3	2.60 @	2.70

Prime Qualities—

Class 1. All Prime Easy Bleaching	2.05 @	2.10

Other Than Easy Bleaching—

Class 2. Higher than Standard	2.00 @	2.05
Class 3, Standard	1.95 @	2.00
Class 4. Lower than Standard	1.90 @	1.95

(On Dock, Atlantic Ports)

Kraft Bleached	3.00 @	3.25
Kraft No. 1	1.85 @	2.00
Kraft No. 2	1.70 @	1.80

(F. o. b. Pulp Mill)

Kraft Domestic	1.80 @	2.00

(Delivered)

Soda Bleached	2.60 @	—

* Add 60 Cents per short ton, dock charges, for Albany: $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	7.50 @	7.75
Silesias No. 1	5.50 @	5.75
New Unbleached	8.25 @	8.50
New Soft Blacks	3.75 @	4.00
Blue Overall	6.50 @	6.75
Fancy	3.00 @	3.25
Washables	2.25 @	2.50
Mixed Khaki Cuttings	3.50 @	3.75
O. D. Khaki Cuttings	4.25 @	4.50
Men's Corduroy	2.00 @	2.25
New Mixed Blacks	2.75 @	3.00

Old Rags

White, No. 1—		
Repacked	3.25 @	3.50
Miscellaneous	2.75 @	3.00
White, No. 4—		
Repacked	2.25 @	2.50
Miscellaneous	1.75 @	2.00
Thirds and Blues		
Repacked	2.00 @	2.25
Miscellaneous	1.90 @	2.00
Roofing Rags—		
No. 1	1.80 @	1.85
No. 2	1.35 @	1.40
No. 3 (bagging)	1.20 @	1.30
No. 4	1.20 @	1.30
No. 5A	.90 @	1.00

Foreign Rags

New Rags

New Dark Cuttings	2.25 @	2.50
New Mixed Cuttings	2.00 @	2.25
New Light Silesias	4.50 @	5.00
Light Flannelettes	4.50 @	5.00
New White Cuttings	7.00 @	7.50
New Light Oxfords	4.00 @	4.50
New Light Prints	3.00 @	3.25

Old Rags

No. 1 White Linens	7.50 @	8.00
No. 2 White Linens	6.50 @	7.00
No. 3 White Linens	4.50 @	5.00
No. 4 White Linens	2.25 @	2.50
No. 1 White Cotton	4.25 @	4.75
No. 2 White Cotton	3.25 @	3.75
No. 3 White Cotton	2.50 @	2.75
No. 4 White Cotton	1.90 @	2.15
Extra Light Prints	2.00 @	2.25
Ord. Light Prints	1.75 @	1.85
Med. Light Prints	1.55 @	1.65
Dutch Blue Cottons	2.25 @	2.50
French Blue Linens	3.50 @	4.00
German Blue Linens	2.50 @	2.75
German Blue Cottons	2.00 @	2.25
Checks and Blues	2.00 @	2.25
Linsey Garments	2.15 @	2.25
Dark Cottons	1.90 @	2.10
Old Shopperies	1.75 @	2.00
New Shopperies	1.75 @	2.00
French Blues	2.25 @	2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	2.10 @	2.15
Domestic	1.75 @	1.85
Wool Tares, light	1.50 @	1.75
Wool Tares, heavy	1.85 @	2.05
Bright Bagging	1.70 @	1.75
Manila Rope—		
Foreign	2.40 @	2.60
Domestic	2.25 @	2.50
Mixed Strings	1.10 @	1.15
New Burlap Cut	2.75 @	3.00
Hessian Jute Threads—		
Foreign	3.00 @	3.25
Domestic	2.80 @	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
White Envelope Cuttings	2.55 @	2.65
Ordinary Hard White No. 1	2.25 @	2.35
Hard White No. 2	2.10 @	2.20
Soft White No. 1	1.95 @	2.05
Flat Stock—		
Stitchless	.65 @	.75
Over issue Mag	.65 @	.75
Solid Flat Book	.55 @	.60
Crumpled No. 1	.35 @	.40
Solid Book Ledger	1.50 @	1.65
Ledger Stock	.85 @	.90
New B. B. Chips	.30 @	.35
Manilas—		
New Env. Cut	1.75 @	1.85
New Cuttings	1.35 @	1.45
Bogus Wrapper	.40 @	.50
Old Kraft Machine—		
Compressed bales	1.05 @	1.30
News—		
No. 1 White News	1.15 @	1.25
Strictly Overissue	.50 @	.60
Strictly Folded	.30 @	.35
No. 1 Mixed Paper	.22½ @	.27½

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Superior Quality and Service Obtains Business

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GLAZED TILE TANKS

Cost less and much more durable than concrete or cypress. Cleaner. Will not "slime up." Over 300 now in use in mills from Maine to Minnesota.

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We've been building wood stock chests, acid tanks and blow pits for over 60 years.

Since 1901

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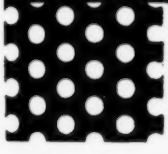

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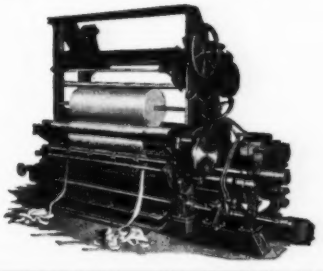
Slitters and Roll Winders

help reduce upkeep and labor costs in many plants.



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for all equipment exposed to corrosion by sulphite acids

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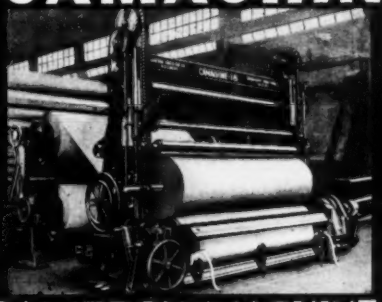

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Standard Widths 82 to 162

Winds Rolls 42 or 60 in Diameter

Operating Speed up to 2,000 F.P.M.

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MEMPHIS, TENN.
COMMERCE TITLE BUILDING

Twines

(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—			
India	.13¾	@	.15¾
Belg. White Hemp	.14¼	@	.17¾
India Compress	.13¾	@	.14¼
Fine Polished—			
Fine India	.21½	@	.23½
Special	.19½	@	.21½
Unpolished—			
Box	.12	@	.12½
Paper Makers	.09	@	.13½
Tube Rope	.10	@	.15½
Wall Paper	.11	@	.14½
Wrapping	.15½	@	.21
Special	.15	@	.15½
Soft Fiber Rope	.12½	@	.12¾

(Hard Fibre)

Bond	.09½	@	.18
Anchor	.09	@	.10½
Manila	.21	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.40
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.07¼
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	42.00	@	—
Sheets, open	47.00	@	—
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.60	@	.70
Solid Books	.50	@	.60
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1 Folded News	.42½	@	.45
No. 1 Mixed Paper	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

Rag Content Bond & Ledgers— Delivered Zone 1	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers— Delivered Zone 1	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, M. F.	5.00	@	—
Book, S. S. & C.	5.25	@	—
Book, Coated	6.15	@	—
Coated Lithograph	6.15	@	—
No. 1 Jute Manila	10.50	@	—
Manila Sul., No. 1	6.75	@	—
Manila No. 2	4.25	@	—
No. 1 Kraft	6.00	@	—
Southern Kraft	5.00	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.08	@	.08½
New White, No. 2.	.04½	@	.05
Light Silesias	.05½		—
Silesias, No. 1	.04½	@	.05
Black Silesias, soft.	.03½	@	.04
New Unbleached	.06	@	—
Washable, No. 1	.02	@	.02½
Blue Overall	.06	@	.06½
Cottons—According to grades—			
Washable, No. 2	.02½	@	.04½
New Blue	.01¾	@	.02¾
Fancy	.03	@	—
New Black Soft	.04	@	.04½
New Light Seconds	.03½	@	.04
New Dark Seconds	1.75	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.04	@	.04½
No. 2 Mixed	.03½	@	.04
Corduroy	.02	@	.02¼
New Canvas	.04	@	.04½
New Black Mixed.	.02	@	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	4.00	@	4.50
Miscellaneous	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	2.00	@	—
Repacked	2.25	@	2.50
Black Stockings (Export)	4.50	@	5.00
Roofing Stock—			
Foreign No. 1	2.20	@	2.25
Domestic No. 1	1.80	@	1.85
Domestic No. 2	1.60	@	1.65
Roofing bagging	1.30	@	—

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	—
Domestic	2.25	@	—
Manila Rope	2.25	@	2.50
Sisal Rope	2.00	@	2.25
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	2.00	@	2.50
No. 2	.90	@	1.00
Wool Tares, heavy	3.00	@	3.25
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.50	@	2.75

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.30	@	2.40
No. 2 Hard White	2.10	@	2.20
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.40	@	1.45
No. 1 Mixed	—	@	.85
Solid Ledger Stock	1.50	@	1.60
Ledger Stock, white	1.15	@	1.20
Ledger Stock, colored	.85	@	.90
No. 1 Books, heavy	.65	@	.70
Manila Cuttings	1.50	@	1.60
Print Manila	.50	@	.60
Container Manila	.50	@	.60
Kraft Paper	1.10	@	1.20
No. 1 Mixed Paper	.35	@	.40
Straw Board Chip	.40	@	—
Binders Board Chip	.40	@	—
Corrugated Board	.60	@	.65
Overissue News	.60	@	—
Old Newspapers	.40	@	—

BOSTON

Paper

Rag Content Bond & Ledgers— Delivered Zone 1	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers— Delivered Zone 1	Bonds	Ledgers
No. 1 Sulphite	7.50	8.50
No. 2 Sulphite	6.50	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¼	@	—
No. 2 Kraft	.04½	@	—

(Delivered New England points)

Southern Kraft	.04	@	—
News Print Rolls	39.50	@	—
Straw Board, rolls	.009	@	35.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	55.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.10
No. 1 Soft White	1.75	@	1.85
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.60	@	.65
White Blank News	1.10	@	1.15
No. 1 Kraft	1.05	@	1.12½
Mixed Papers	.22½	@	.25
Print Manila	.47½	@	.50
Container Manilas	.27½	@	—
Old Newspapers	.25	@	.27½
Overissue News	—	@	.40
Box Board Chips	—	@	.25
Corrugated Boxes	.35	@	.37½
Kraft corrugated boxes	.95	@	1.00
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.35	@	2.45
Domestic	2.25	@	—
Transmission Rope	1.20	@	1.30
Jute Rope	1.90	@	2.10
Jute Carpet Threads	1.00	@	1.10
Gunny No. 1—			
Foreign	1.90	@	2.00
Domestic	1.80	@	1.90
Bleachery Burlap	4.50	@	5.00
Scrap Burlap—			
Foreign	2.00	@	2.10
Domestic	1.75	@	1.85
Scrap Sisal	1.90	@	2.00
Scrap Sisal for Shredding	2.10	@	2.25
Wool Tares, heavy	1.90	@	2.00
New Burlap Cuttings	2.00	@	2.25
Australian Wool Pouches	2.25	@	2.50
Heavy Baling Bagging	1.75	@	2.10
Paper Mill Bagging	1.65	@	1.70
Bagging No. 2	1.10	@	1.25

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01¾	@	.02
New White No. 1	.07	@	.07½
New White No. 2	.04	@	.04¼
Silesias No. 1	.05	@	.05½
New Black Silesias	.03½	@	.04¼
Soft Unbleached	.07¼	@	.07¾
Blue Cheviot	5.50	@	6.00
Fancy	.02½	@	.02¾
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	5.00	@	5.50
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
O. D. Khaki	.03¾	@	.04¼
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	—	@	.06¼

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock—			
No. 1	1.50	@	1.65
No. 2	1.30	@	1.35
No. 3	1.10	@	1.25

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.50	@	1.70
New White Shirt Cuttings	6.50	@	6.75
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.75	@	1.90
Old Linsey Garments	1.75	@	2.00
New Silesias	5.00	@	5.75

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.11	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.12	@	—
No. 2 Colored	.09	@	—
Ledgers			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.50	@	—
No. 2 M. F. (Carloads)	6.00	@	—
No. 3 M. F. (Carloads)	6.00	@	—
No. 1 S. C. (Carloads)	7.00	@	—
No. 2 S. C. (Carloads)	6.50	@	—
No. 3 S. C. (Carloads)	6.50	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	4.80	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	40.50	@	—
Sheets	45.00	@	—

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.25
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.40
Printed Manilas	.50	@	—
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.55	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.07½	@	.07¾
Fancy Shirt Cuttings	.02¾	@	.03